

From DEPARTMENT OF NEUROBIOLOGY,
CARE SCIENCE AND SOCIETY
Karolinska Institutet, Stockholm, Sweden

ACTIVE LIFESTYLE ALL YOUR LIFE - A MULTIFACTORIAL GROUP-BASED FALLS- PREVENTION PROGRAMME

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**Karolinska
Institutet**

Stockholm 2015

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Published by Karolinska Institutet.

Printed by AJ E-Print AB

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ISBN 978-91-7549-992-5

Active lifestyle all your life - a multifactorial group-based falls-prevention programme

THESIS FOR DOCTORAL DEGREE (Ph.D.)

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In loving memory of my mother who every morning, when I left for elementary school, waved me goodbye with the words:

“Do your best and leave the rest”

29 years later, I can still hear her voice and answer her:

“Yes mother, I did just that!”

ABSTRACT

Internationally, gerontology focuses on an emerging paradigm of healthy ageing where the goal is to extend the senior years in absence of morbidity by improving human health. A major threat to healthy ageing is accidental falls, as falls are the second-leading cause of unintentional injury or deaths worldwide. For the individual who falls, it is crucial to be able to continue living an active, independent life in one's senior years. Additionally social engagement, valued activities, as well as exercise are known to be essential for longevity. Accidental falls in older age are increasingly problematic worldwide, and are the focus of several research projects. Although multi-factorial fall-prevention interventions have been shown to reduce falls, the translation of research into the practical field, e.g. primary health care, has been limited. An occupational perspective was applied in this thesis, in order to capture the efficacy of a falls-prevention programme in relation to everyday occupations.

The programme *Active lifestyle all your life* was implemented among older adults, over the age of 65, at nine different primary care units in Stockholm, Sweden, during 2011. Each group met for two hours biweekly at the primary health care unit near the older adults' homes. In total, the groups met 12 times during a nine-month period. At every group meeting, different themes were addressed and all were related to the prevention of falls from multifactorial perspectives. The group leaders encouraged active engagement in discussions, occupations as well as in exercises and in home assignments. The focus in every session was on falls prevention in keeping with the view of valued activities as a prerequisite for health. Throughout the programme, the group leaders used standardised material developed for this programme and every participant was supplied with a complete set of this material in a binder.

AIM

The overall aim of this thesis was to contribute with new knowledge that reflects experiences from, and efficacy of a multifactorial group-based falls-prevention programme, in relation to everyday occupations among community-dwelling older adults at risk of falling.

METHODS

The evaluation methods used were a balance between quantitative and qualitative, with an overall RCT design for the participants (n=131). Quantitative outcome measures (Study III & IV) of falls, fear of falling, and participation measures were analysed using descriptive statistics and general estimated equation models (GEE). Focus group interviews (Study I) with the group-leaders (n=15) were analysed using a constant comparative approach and repeated narrative interviews (Study II) with six participants were analysed using thematic analysis.

RESULTS

The results from the evaluations showed that the participants in the programme had a significant decrease of their risk of falling at follow-up than the controls, and a reduced risk of falls compared to over time. According to the measurements of Fear of falling, the participants in the programme reduced their risk of experiencing fear significantly. Further, the participants in the programme showed positive trends with respect to a decreased risk of experiencing problems with participation at follow-up. The qualitative findings indicated that: the multifactorial approach in general and the group format of the programme specifically, had an important impact on the participants' engagement in valued activities. The group format worked as an amplifier in the translation of expert knowledge to applied knowledge, which led to increased awareness and behavioural change. In addition, for the process of behavioural change to work, the therapists as group leaders needed to move between the role of the expert and the role of a facilitator to be able to create a safe and benevolent climate for engagement, learning and knowledge translation.

CONCLUSION

Falls and Fear of falling could be positively impacted by using multifactorial, occupation focused and occupation-based methods. Small group-learning environments in combination with learning by doing, can be an effective approach used to prevent falls and reduce fear of falling among older individuals at risk. The knowledge derived from this thesis could be of use as a prevention programme model for implementing Evidence Based Practice (EBP) in primary health care and could serve as one attempt to plan ahead, and support active ageing by using an occupational perspective.

LIST OF SCIENTIFIC PAPERS

- I. Johansson, E., Borell, L., Jonsson, H. (2014). Letting go of an old habit: group-leaders' experiences of a client-centred multi-disciplinary falls prevention programme. *Scandinavian Journal of Occupational Therapy*, 21(2): 98–106. Doi:10.3109/11038128.2013.868515
- II. Johansson, E & Jonsson, H. (2013). Thinking and Acting in a new way: Influences of a falls-prevention programme on participants' everyday life. *Physical & Occupational Therapy in Geriatrics*. 31(4):281–296. Doi:10.3109/02703181.2013.854858
- III. Johansson, E., Dahlberg, R., Jonsson, H., Patomella, A-H. (2015). Does a falls-prevention program impact on perceived participation in everyday occupations? – A pilot randomized controlled trial. Early on-line. *Occupation Participation and Health OTJR* 1-9. Doi: 10.1177/1539449215589728
- IV. Johansson, E., Dahlberg, R., Jonsson, H., Patomella, A-H. The efficacy of a multifactorial falls-prevention programme in relation to falls and fear of falling: a pilot randomised controlled trial. Manuscript submitted.

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LIST OF ABBREVIATIONS

CI	Confidence Interval
EBP	Evidence Based Practice
FES-S	Falls Efficacy Scale - Swedish version
FoF	Fear of Falling
GEE	Generalized Estimated Equation
IPA-S	Impact on Perceived Participation and Autonomy Questionnaire - Swedish version
ITT	Intention to Treat
MOHO	Model of Human Occupation
OGQ	Occupational Gaps Questionnaire
OR	Odds Ratio
OT	Occupational Therapist
PT	Physiotherapist
RCT	Randomised Controlled Trial
SAS	Statistical Analysis System
SD	Standard Deviation
SF12	Short form-12 - Swedish version
SPSS	Statistical Package for Social Sciences
WHO	World Health Organization

PERSONAL INTRODUCTION

As an occupational therapist working with community-based rehabilitation among older adults, the majority of the persons I met had experienced an accidental fall. In addition, I experienced how there seemed to be a lack of time for regularly discussing the falls and their causes, and when discussed, it was problematic to include a multifactorial perspective. An increasing feeling of dissatisfaction with this approach led to further discussions targeting the need for and importance of establishing regular multidisciplinary “fall meetings”. In the meantime, the absence of discussions from a multifactorial perspective along with novice attempts to find new approaches to falls prevention, the older adults kept on falling.

My grandmother lived in a house, or actually a small farm, in the north of Sweden. She was a “doer” and used to take care of everybody else and everything practical. She had cows that she took care of and hand milked twice a day. She received several awards for the cleanest milk. There was a lot of hard work in the cowshed and in the barn. Furthermore, the radiators in her house were heated by an oil-fired boiler, run on either oil or firewood. As she preferred to use wood to load the boiler, as this was cheaper than oil, that choice resulted in an extensive workload. Getting down the steep concrete stairs to the basement every hour to keep the fire burning in order to have warm water and heated radiators kept her going, until one day when she fell on the stairs and hurt her knee very badly. This single accidental fall initiated a negative spiral of decline and deterioration. She was never able to move back home again and instead ended up in a nursing home.

This mix of experiences from diverse points of view in the context of accidental falls made me humbly interested in the complexity and multi-layered dimensions unfolding within everyday life in relation to accidental falls. From this point of departure, my adventure began as a PhD Student in the Doctoral School in Health Care Sciences, Karolinska Institutet.

INTRODUCTION

Internationally, gerontology focuses on an emerging paradigm of “healthy ageing” (Fries, 2012) where the goal is to extend the senior years in absence of morbidity by improving human health. The World Health Organization [WHO] (World Health Organization, 2004) states that the encouragement of the individual’s participation and involvement in all dimensions of the society should be secured. Active ageing is defined as a process with the goal to boost quality of life within ageing individuals, by creating possibilities for participation and active ageing (World Health Organisation, 2002). To prevent risk of deterioration and improve well-being it is essential to facilitate health behaviour changes among older adults (Fried et al., 2004). A major threat to healthy ageing is accidental falls, as falls are the second-leading cause of unintentional injury or deaths worldwide. Available research shows that accidental falls among individuals 65 and over are a major community health problem (Gillespie et al., 2012; The Swedish National Institute of Public Health, 2007). For the individual who falls, it is essential to be able to continue living an active, independent life in one’s senior years. Additionally, social engagements, productive activities, as well as exercise are known as essential for longevity (Armstrong, Green, Reeves, Beral, & Cairns, 2015; Glass, de Leon, Marottoli, & Berkman, 1999). Accidental falls in older age are an emerging problem worldwide and the focus of several research projects. Although multifactorial fall-prevention interventions have been shown to reduce falls (Gillespie, et al., 2012), the translation of the research into the practical field, e.g. Evidence Based Practice (EBP), has been limited. Consequently, more remains to be studied concerning fall-prevention programmes that combine and apply various ideas and approaches to provide effective, purposeful, and useful interventions in clinical practice.

This thesis comprises four different studies all related to the evaluation of a new multifactorial falls-prevention programme. The knowledge presented in this thesis consists of research findings from the programme derived from both quantitative and qualitative methods. The four studies all have the general aim to contribute new knowledge, which reflects experiences from, and efficacy of the programme in relation to everyday occupations in the context of accidental falls. An occupational perspective has been applied to interpret the result in order to capture the efficacy of the programme in relation to everyday occupations. Data from three different approaches will be presented: the group (study III & IV), the individual (study II) and, the group leaders (study I).

Occupation and ageing

An Occupational Perspective

To conceptualise an occupational perspective, or underpin “*a way of looking at or thinking about human doing*” (Njelesani, Tang, Jonsson, & Polatajko, 2012) there are certain concepts which have to be defined. Thus, a definition of the concept of occupation is necessary. The concept of occupation is in this thesis defined as “*all that people need, want or have to do. This definition includes doing, being, and becoming for functional purposes; social, physical, mental and spiritual reasons (much of which is at a subconscious level) for survival; for health; for meeting obligations; for choice or habit, as well as for finding meaning and purpose*” (Wilcock, 2005). More specified, occupations are everyday activities, which are culturally and personally meaningful (Jackson, Carlson, Mandel, Zemke, & Clark, 1998; Zemke & Clark, 1996). Occupation is not placed within the individual, nor in the context. Occupation emerges through the interaction of the human doing and the environment. As such, the human and the environment are inseparable (Kielhofner, 2008) and occupations are unifying actions (Cutchin & Dickie, 2012; Dickie, Cutchin, & Humphry, 2006). The point of departure in this thesis is that human occupation is the core in our existence (Zemke & Clark, 1996).

The profession of Occupational Therapy provides a significant lens for how to view human occupation. Occupational therapists have a special interest in the human doing. The profession views the world through an occupational perspective and a key part of the core of our profession lies within the reciprocal relationship between doing and well-being (Christiansen & Townsend, 2010). Engagement in occupations is believed to contribute to people’s health (Kielhofner, 2008) and participation in life (Wilcock, 2005). Individuals make daily occupational choices, which shape them as occupational beings. Everyday living is a very complex process as it involves multifactorial layers of doing (Jarman, 2010) in everyday activities. Engagement in everyday occupations could be understood through the Model of Human Occupation, MOHO (Kielhofner, 2008). In MOHO, human occupation emerges from three interrelated components: volition, habituation and performance. These components explain how occupation is motivated, organised into everyday life patterns, and performed in the context of the environment. The environment is viewed as both the physical and the sociocultural context. In MOHO, human occupation is always located in and influenced by the environment that could either have a supportive or constraining impact on the performance. In the process of ageing the interrelated components, volition, habituation and performance interact with each other within the environment and this shapes us as occupational beings. What we do and how we experience our doing could be understood as a reciprocal process within our environment (Kielhofner, 2008). According to MOHO, humans seem to be rather stable in their way of thinking and acting over the life span. This stability does not however imply that older adults are not sensitive to change. We can through repetition reshape ourselves and this repetition emerges from interactions within the complex internal systems and the environment. Thus, older adults perceive and interpret the

consequences of falls in differing ways, resulting in the use of varying coping strategies (not necessarily productive) to continue their occupational life (Host, Hendriksen, & Borup, 2011).

The desire for humans to be occupied has evolutionary, psychological, social and symbolic origins (Yerxa, 2000). Individuals engage in occupations for reasons, by themselves or together with others. When using the concept of occupation in this thesis it refers to the meaning of occupation rather than to its nature (Clark et al., 1991; Zemke & Clark, 1996). The meaning is related to experiences from occupations within social, cultural, habitual and environmental contexts (Cutchin & Dickie, 2012; Dickie, Cutchin, & Humphry, 2006; Jackson, et al., 1998). As such, to fully understand the concept of occupation and its relationship to well-being, the significance for the individual has to be acknowledged (Clark, et al., 2001; Clark, et al., 1991).

For occupational therapists and researchers focusing on older adults it is important to identify the occupations that the persons find meaningful (Kielhofner, 2008). These meaningful occupations can be the target of interventions and of use in preventing ill-health (Clark, et al., 2001). Jonsson and colleagues (2001) showed important findings supporting the link between health and occupation in the process of retirement. They found that engaging occupations and social occupation had a close relationship to well-being and that basic or time-killing occupations had a low relationship to well-being. The activities within this new type of categorisation of occupations, based on different levels of meaning, differed at the individual level. Thus, occupation is related to health and well-being through the individual experience of meaning derived from the engagement (Clark, et al., 2001; Everard, Lach, Fisher, & Baum, 2000; Hemmingsson & Jonsson, 2005; Jonsson, et al., 2001; Nilsson, Bernspång, Fisher, Gustafson, & Löfgren, 2007; Nilsson, Lundgren, & Liliequist, 2012; Njelesani, et al., 2012).

The experience-based categorisation of occupation is imperative in this occupational perspective (Jonsson, 2008). If our goal is to make the link between occupation and well-being visible, the subjective meaning derived from the experience of the engagement in occupations has to be acknowledged (Clark, et al., 2001; Hammell, 2009). Hence, not all occupations are linked to health in a positive way. Destructive kinds of occupation, e.g. abuse or violence, or deterioration of occupational engagement (an increased risk after an accidental fall), can constitute a significant threat to health and well-being (Peterson, 2010; Wilcock, 2005).

In this thesis, the data collection in studies III and IV comprised questionnaires with predisposed questions regarding different occupations. All the questionnaires (except for the FES-S) included the subjective meaning or value of the occupations. In study II the participants were asked to narrate their everyday life experiences, e.g. their valued activities, in general within the context of accidental falls and in study I, the therapists engaged in the programme as group leaders, discussed their “way of doing” as well as the older adults’ “doing” in conjunction with their experiences of the programme.

In summary, the meaning of and the engagement in values activities are central within an occupational perspective and in this thesis, as are the assumptions of the reciprocal link between well-being and occupation. The concepts of valued activities, everyday activities and occupations are interchangeably used in this thesis as expressing the positive relationship between engagement in occupation and well-being.

Health and active ageing

There are many theories about ageing from many different perspectives. There are theories that focus on biology and the ageing body in relation to cells and functional decline. Moreover, there are theories focusing on psychological and social maturation and deterioration. Finally, there are theories that concentrate on participation and activity. An occupational perspective of the ageing person falls most naturally within the latter form of theories, and will be used in this thesis as an additional theoretical base.

In gerontology active ageing is defined as a process with the goal of boosting quality of life among ageing individuals by creating possibilities for participation and health (World Health Organization, 2002). Multifactorial interrelated elements, e.g. biological, physiological and behavioural, make impact on the ageing individual and could have a significant impact on the risk of accidental falls. The basic assumption for this process of ageing suggests that older adults are not a homogenous group and that individual discrepancies increase with age over the lifespan (World Health Organization, 2007). As described earlier, according to MOHO the interrelated subsystems interact and amplify each other, which contributes to variability within humans occupational engagement (Kielhofner, 2008).

Within the continuity theory, based on system theory (Atchley, 1989, 2006), beliefs of how the vast majority of older adults have developed stable life patterns of values, occupational patterns and social relations are presented. “*Continuity of values and beliefs, lifestyles, and relationships constitutes a solid base from which to greet changes in circumstances, both positive and negative*” (Atchley, 2006). According to continuity theory, comparable to descriptions of the process of ageing in MOHO, older individuals create themselves as occupational beings as they are dynamic, reflecting and analysing individuals who use patterns of thoughts developed across times to interact in their worlds. The humans consist of internal and external structures from which they interact in occupational choices leading to maintenance of adaptive capacities (Schulz, 2006). The internal structures of the human consists of multi-layered dimensions that, when combined, form a unique whole that distinguishes one person from another. The external structures are formulated by social roles, activities, and relationships. Occupational choices comprise skills and beliefs the individuals have in how they desire to develop, their activities and the environment in which they choose to act. In continuity theory, life experiences are used in decision making about evolving activity engagement. Despite the biological changes, older adults continue to develop and constantly act in a process of change. When the older adults are adapting to change, they continue to use the internal and external patterns, which have

emerged over their lifetime (Schulz, 2006). The continuity of activities and the familiarity of the environment where the activities are performed are referred to as practice. Learning by doing enriches the resources for the older adults to adapt to change (Atchley, 1989, 2006; Kielhofner, 2008).

Other theories have also been developed stressing explanations of the relationship between humans and occupation when ageing. The disengagement theory (Cumming & Henry, 1961; Schulz, 2006) views the older individual in a different way according to engagement in activities. In this theory, the focus is on disengagement and it describes successful ageing as a range of disengagement from activities by gradually replacing social relationships typical of middle-aged life with a narrower and reduced amount of social involvements and interests in later life. Further, this disengagement theory states how the individual and the society withdraw from each other in a reciprocal process leading to more limited participation in the society and the everyday activities outside home. The meaning of disengagement is primarily a social process and determined by social structures that vary across places, persons and over time (Schulz, 2006).

In contrast to disengagement there is the activity theory of ageing (Havighurst, 2009; Havighurst & Albrecht, 1980) in which the goal for the person is to live the senior years as an individual who despite their chronological age still engages in social activities amongst others. In this theory, activities are defined as the doing in its simplest form without any connection to meaning or personal choice (Schulz, 2006). The focus is on quantity rather than quality of engagement and activities. Not much attention is given to the individual choice, meaning or preferences of alternative activities or roles (Schulz, 2006).

An alternative way to view old age is offered by Laslett (1997) who divided old age into two quite distinctive phases, the 3rd and 4th age. The third age is defined as the prolonged time, with respect to advanced health and increased longevity after retirement and consists of personal achievements and fulfilment. As humans live longer, the time for retirement today provides opportunities to have many active years before entering the 4th age. The last age, the 4th, is about decline in health, disengagement and increased dependency as well as frailty.

The continuity theory and Laslett's theory of the 3rd and 4th age are potentially important in explaining human ageing in relation to occupations and valued activities in the context of accidental falls. An occupational perspective recognises the relevance of both an adaptation in the quantified activity level over age, as well as maintenance of an appropriate activity level in selected activities that continue over the life span. However, as meaning and engagement are key focus of an occupational perspective these aspects becomes crucial for participation and well-being for the older person. As such, using Laslett's (1997) theories of the 3rd and 4th age, effective falls prevention among older adults can be seen as prolonging the 3rd age with possibilities for the continuation of participation and engagement in valued activities in accordance with the continuity theory (Atchley, 2006) and MOHO (Kielhofner, 2008).

Accidental falls and the consequences

In the year 2025 approximately 30% of the individuals in Europe will be 60 years or older. The highest increase will be in the population aged 80 years of age or older (The Swedish National Institute of Public Health, 2007). This dramatic increase in our older citizens demands action to be taken in the society to meet the needs of this ageing population.

Accidental falls among older adults (+65) are among the fastest growing community health problems in developed countries. One of the three most common causes of deadly injuries among older citizens in Europe is falls (The Swedish National Institute of Public Health, 2007). The prevalence of falls among the population of older adults varies between 20-33% (Peel, 2011). The risk of experiencing a fall increases with age and frailty, and for individuals over the age of 70, the fall rate is estimated to be 37% (World Health Organization, 2007), but varies considerably (Peel, 2011; Rubenstein, 2006). When using the term accidental fall, as clear and universally understood as the concept seems to be, it might be interpreted in different ways. Thus, it is imperative to define the concept of accidental falls (Hauer, Lamb, Jorstad, Todd, & Becker, 2006; Peel, 2011; Pohl, 2015). An accidental fall will, in this thesis, be defined as an event that results in a person coming to rest unintentionally on the ground or floor or other lower level (Hauer, et al., 2006; Lamb, Jorstad-Stein, Hauer, & Becker, 2005; World Health Organization, 2007). The incidences of falls are associated with doing of everyday occupations (Hägvide, Larsson, & Borell, 2013; Lord, Sherrington, & Menz, 2000) and are strongly related to exposure. Falls take place in situations where older adults are performing their everyday activities (Hägvide, et al., 2013). The location of where the fall occurs is intertwined with where the “doing” comes about. Typical places in the house are living room, kitchen and hallways (Lord, et al., 2000), and falls indoors amount to 50% of the total incidence of falls among community-dwelling older adults.

Falls among older adults are not single events just happening due to “random bad luck.” Instead, an accidental fall has to be understood as a complex event based on the interaction of risk factors. Risk of falls is multifactorial and comprises for example, deterioration of body functions, depression, visual impairment, age, history of falls, female sex, use of walking aids, use of medications or limited physical activities (Deandrea et al., 2010). This complex event (falling) always includes the human and the environment in an inseparable unit. The word accidental implies that the fall is caused by an accident, but for this particular age group, an accident is often not the case. Rather the interaction of the increased vulnerability of the aged body (intrinsic factors) and identified hazards in the environment (extrinsic factors), represent the true cause (Lord, et al., 2000; Rubenstein, 2006).

Although most falls do not cause any serious injury, around 10-15% result in serious injuries and hospitalisation (Peel, 2011). In Sweden, falls resulting in hospitalisation have doubled in the last 20 years. The risk of suffering fall injuries increases with age, and nine out of ten fall injuries concern individuals over the age of 65. Only one in every four older adults who fall can expect to recover the

same level of function as before the fall. A person who has been forced to attend medical services due to falling will probably suffer from another injurious fall within five years (Pohl, 2015). Persons who are hospitalised due to a fall-related injury have a worse disability outcome and are more likely to be admitted to nursing homes (Gill, Murphy, Gahbauer, & Allore, 2013) and consume significant health care resources (Close et al., 2012). The consequences for the individual after a hip joint fracture are often impaired mobility, both due to the restriction in function but also due to the fear of falling again (Delbaere et al., 2010). Dependence on help from other people and home care also increases after the fracture. Individuals affected describe impaired quality of life and how the ability to live an independent life in the society is limited. The complexity of the lived experiences of a fall proceeds beyond the physical effects (Bailey, Jones, & Goodall, 2014). Even non-injurious falls may result in activity limitations in everyday activities caused by a post-fall syndrome characterised by dependence, lowered autonomy, functional decline, decreased quality of life, and fear of falling (Lord, et al., 2000; Rubenstein, 2006; World Health Organization, 2007).

Fear of falling and activity avoidance is frequently reported among older individuals, both fallers and non-fallers (Peterson, 2010; World Health Organization, 2007; Zijlstra et al., 2013; Zijlstra et al., 2007). Fear of falling could also result in progressive loss of health-related quality of life (Scheffer, Schuurmans, van Dijk, van der Hooft, & de Rooij, 2008) and is defined as low perceived self-efficacy in avoiding falls during basic everyday activities (Tinetti, Richman, & Powell, 1990). During recent years, research within the prevention of falls has been extensively presented. Moreover, the interconnections between fall and fear of falling have been scrutinized in fall preventive research; however, the results have been inconclusive. The common belief that fear of falling develops as a direct result of a fall has been questioned in the literature, (Clemson, Kendig, Mackenzie, & Browning, 2015; Delbaere, Crombez, Van Den Noortgate, Willems, & Cambier, 2006) suggesting that there might be a more complex relationship between these two phenomena.

Individuals who have fallen describe impaired quality of life, decrease of engagement in activities (Peterson, 2010) and how the ability to live an independent life in the society is limited (Salkeld et al., 2000). Accordingly, the concepts of participation and autonomy are important to define and use, as participation restrictions could be a major consequence for the individual after an accidental fall. The term participation is defined as the individual's lived experiences of involvement in different life situations (World Health Organisation, 2002). In occupational therapy when adopting an occupational perspective, the individual's experience is of fundamental significance in rehabilitation work and is interrelated with participation (Clark, et al., 1997; Hemmingsson & Jonsson, 2005; Yerxa, 2000; Zemke & Clark, 1996). Similarly, in a study by Hammel and colleagues (Hammel et al., 2008), findings indicate that participation as a concept could be understood as "*complex, nuanced phenomena that can be experienced and play out quite differently for different people on individual, social, community and societal level*" (p.1449). Another concept, autonomy, is related to the concept of participation. Autonomy is defined as a human right of self-determination and the right to be in

control of one's own life (World Health Organization, 2002). By strengthening the clients' autonomy and capturing their occupational needs and desires in everyday occupations, their experiences of perceived participation can also increase (Cardol et al., 2002; Cardol, De Jong, & Ward, 2002; Perenboom & Chorus 2003).

Summing up, falls need to be prevented as they can have a significant impact on the lives of the affected, such as decreased activity involvement, Fear of falling and participation restrictions. To experience one fall is defined as one extensive risk factor for recurrent falls (Gillespie, et al., 2012; Lord, et al., 2000; Pohl, 2015; World Health Organization, 2007).

Falls-prevention

The complex threats to active ageing, i.e. falls, need to be addressed using a multifactorial and multidisciplinary approach (Menichetti, Cipresso, Bussolin, & Graffigna, 2015). Falls and Fear of falling among older adults need to be understood and responded to from a multifactorial perspective (Chang et al., 2004; Gillespie, et al., 2012; McClure et al., 2005). Multifactorial preventive programmes are able to address several risk factors, i.e. malnutrition, polypharmacy or home hazards. Further, multidisciplinary programmes that involve several different professional groups, e.g. physiotherapists, occupational therapists or nurses, have shown efficacy in rehabilitation work (Clemson, 2010; Clemson et al., 2012; Gillespie, et al., 2012). It has been concluded from research that to be effective, a falls prevention intervention, should be multifactorial, multidisciplinary and include exercise (Stubbs, Brefka, & Denking, 2015). In addition, a falls prevention programme should also include customised home-safety assessments and home modifications delivered by occupational therapists. To be of interest to the individuals, conclusive research recommends that effective interventions should be formulated and aimed towards the participants being able to maintain an active lifestyle, continue to pursue interests and stay independent (Yardley et al., 2006; Yardley, Donovan-Hall, Francis, & Todd, 2006). A non-patronising approach in a small group environment has been shown to facilitate the principals of adult learning, to raise the awareness of health risks and to enable changes in the performance of everyday activities (Efraimsson, Hillervik, & Ehrenberg, 2008; Gustafsson et al., 2012; Pandya, 2010).

Despite the comprehensive research on accidental falls targeting community-dwelling older adults and preventive interventions related to falls and fear of falling, the translation and employment of the knowledge gained from research is still surprisingly sparse among clinicians (Close, 2005; Shubert, Smith, Prizer, & Ory, 2014) and in Primary Health Care (World Health Organization, 2007). Learning from this, a new programme for falls prevention was developed and implemented in the primary health care in Stockholm, Sweden.

The development of the new programme “Active Lifestyle All Your Life”

Clinical expertise in conjunction with research evidence

Preliminary work was carried out prior to the actual development of the programme, Active Lifestyle all Your Life. A multidisciplinary reference group was formed and several meetings were set up. The reference group included clinicians with extensive knowledge about falls prevention in primary health care. The meetings aimed to discuss and highlight important principles for falls prevention applicable in clinical practice. The reference group came from the primary health care units within the County Council of Stockholm. Researchers specialised in the topic of interest also participated in the meetings. Further, persons from retiree organisation were invited to participate, in order to include user-perspective approaches in the programme. The reference group formulated a number of principles and approaches, which were based on conclusions from the group meetings and evidence from research. The main principals for the programme are described below.

The first principal of the programme was to address the complexity of accidental falls; it was imperative to use multifactorial and multidisciplinary approaches (Gillespie, et al., 2012). Falls have to be addressed from a variety of approaches depending on their complexity. When adopting the multifactorial approach in addressing the complexity of falls, a multidisciplinary method for the programme’s deliverance was imperative (Chang, et al., 2004; Yardley, Bishop, et al., 2006; Yardley, Donovan-Hall, et al., 2006). Diverse professional groups, such as occupational therapists, nurses, physiotherapists, and dieticians should be able to contribute their specialist knowledge, and should be included.

Secondly, the theoretical basis of the programme should rely on Occupational Science and be occupation-centred (Fisher, 2013). Occupation -centred is defined as a specific perspective which when fully adopted leads to the placement of occupation in the middle. The occupation-centred approach will guide the therapeutic reasoning as well as the facilitation of occupational engagement (Hooper, 2006). As described earlier, the occupational perspective views humans as occupational beings and underpins the beliefs in the relationship between engagement in valued activities and well-being (Christiansen & Townsend, 2010; Clark, et al., 1997; Eriksson, Lilja, Jonsson, Petersson, & Tatzert, 2015; Everard, et al., 2000; Hemmingsson & Jonsson, 2005; Jackson, 1996; Jonsson, et al., 2001; Nilsson, et al., 2007; Nilsson, et al., 2012; Njelesani, et al., 2012). The focus of the programme was to implement, describe and apply the view of occupations as a prerequisite for health. This choice was based on the strong beliefs that meaning could derive from engagement in occupation, which is defined as a key concept of healthy ageing (Wilcock, 2005; World Health Organisation, 2002). In the field of Occupational Science, the goal is the enablement of individuals to continue to live an active life irrespective of age and functional impairment. The individual must be able to continue to be

involved in valued activities and to feel involved in situations that are considered to be valuable to the individual (Clark, et al., 2001; Clark, et al., 1991; Jonsson, 2011; Wicks, 2006; Wilcock, 2005). Specifically, the programme's approach was influenced by "Lifestyle redesign" and "Lifestyle matters" developed by groups of researchers in the USA and the UK (Clark, et al., 1997; Mandel, Jackson, Zemke, Nelson, & Clark, 1999; Mountain & Craig, 2006) and evaluated as intervention programmes for older adults at risk in general.

Thirdly, the importance of the programme to be occupation-based was acknowledged. Occupation-based refers to the usage of the person's engagement in occupations as a therapeutic agent for change (Fisher, 2013). The experiences from the professionals in primary health care were that opportunities for occupation-based practice have been reduced in favour of other types of interventions. These other interventions are believed to be less time-consuming but might not have been evaluated for their efficacy. Learning by doing (occupation-based) in dialogue with others was also discussed as an important starting point. In order to adopt an occupational perspective and facilitate health and well-being through engagement in occupations, the group discussions among the participants ought to be occupation-focused (Fisher, 2013), related to the participants' everyday life, and valued activities. Occupation-focused means that occupation is placed in the foreground and aims to be of immediate attention. Furthermore, practical engagement in the intervention, both in discussions and occupations, was a principal viewed as a precondition for a permanent change of behaviour (Gillis & English, 2001).

In addition, to be of interest to the individual the programme had to adopt the approaches of adult learning, implying that learning takes place in a social context in which the entire group participates and is actively involved (Foley, 2000). Further, one of the most interesting ideas for programme development is that of client-centredness (Law, Baptiste, & Mills, 1995). It has been suggested that the prevention of disability and falls should be conducted from a client-centred approach. "*Client-centred practice recognizes the autonomy of individuals, the need for client choice in making decisions about occupational needs, the strengths clients bring to a therapy encounter, the benefits of client-therapists partnership and the need to ensure that services are accessible and fit the context in which a client lives*" (Law, et al., 1995. p. 253). In client-centred practice it is important to provide the individuals with problem-solving skills in order to strengthen their autonomy (Whalley Hammell, 1995), which contributes to extended possibilities of active ageing (Wiederhold, Riva, & Graffigna, 2013). The goal of this adult learning strategy was to raise awareness of the importance of being more informed about the complexity of accidental falls and how to take control and use coping behaviour in everyday life. Further, the fundamental learning outcome of the programme was that the participants should be able to integrate the knowledge required to motivate them to take initiatives themselves to make the necessary changes in their home, their close environment and in the society.

The content, form, and structure of the programme

Finally, all the approaches outlined above were summarised and the new multifactorial fall-prevention programme was formulated as a study group led by an occupational therapist and a physiotherapist, see Figure 1. Standardised material in the form of a binder was supplied to all the participants in the study groups as well as to the group leaders. This standardised material was based on the strongest predictors of effective falls-prevention interventions and was developed from a multifactorial base and delivered using a multifactorial and multi-disciplinary approach to learning.

Various professional experts were invited to write the comprehensive chapters in the binder, based on their significant skills and based on research. Factual texts, homework assignments, checklist for safer home environment, and a balance exercise programme were included in the material. Furthermore, two diaries were included, one to note the physical exercises and the other to observe activity patterns. When the material was developed, written, and printed, the approach and the form of delivery were established.

The group leaders (OT& PT) were to be present and facilitate the meetings at every session. In addition, they were to invite other professionals to take part in some of the meetings. A nurse was invited to inform about polypharmacy, a dietician informed participants about nutrition and good healthy routines around meals. Also a social worker was invited, sometimes together with a person from a retiree organisation to provide information about the municipality and its service. Balance training was to be performed within the group format at every session, and instructions were given that it was to be performed at home every day. The exercises were individually tailored to each participant within the group format to optimise the potential effect (Chodzko-Zajko et al., 2009; Nelson et al., 2007). Sections focusing on helping the participants to learn how to get up from the floor by using certain techniques were also included in the balance training and the participants were told to practice this at home. Individually-tailored home visits were performed in each of the participants' homes together with the group leaders, in total two per individual.

The programme as a whole was grounded in an occupational perspective and predominantly consisted of, what Fisher calls an occupation-focused and/or occupation-based intervention (Fisher, 2013). This is expressed by the term, active lifestyle, and the perspective that all parts of the programme aimed at facilitating opportunities for the older adult to continue and/or adapt their performance of valued activities. Considering Fisher's definition, some of the activities in the programme were not occupation-focused and/or occupation-based. Examples of this could be the nurse talking about medications or the aid assessors from the municipality talking about alternative way of living as in nursing homes or the possibility of getting home help. None of these themes were occupation-focused or occupation-based (Fisher, 2013). In addition, the interventions could be directed towards modifications of the home environment, (occupation-focused but not occupation-based), or exercise/strength training to increase balance as in body functioning, (occupation-based but not

occupation-focused). These sessions were guided from an occupation-centred professional perspective.

The group sizes were set to comprise 8-10 older adults each and the length of the programme was to be 9 months. This approach, in a small group environment, facilitates the participant's engagement in tasks and processes (McKimm & Morris, 2009) and increase possibilities for behavioural change. The client-centredness implied the facilitation of every individual's wishes and needs in relation to their experiences of falls in the groups. The therapists aimed to apply a client-centred approach when facilitating the group discussion and to encourage every individual member to talk. The approach of client-centred practice was also in focus during the two home visits. The group leaders all participated in a one-day educational workshop prior to the implementation of the programme to achieve a common understanding of the programme's content and its approach to learning (Vaapio et al., 2007; Vaapio, Salminen, Ojanlatva, & Kivela, 2009; Yardley, Bishop, et al., 2006; Yardley, Donovan-Hall, et al., 2006).

The content of the programme:	The 12 group meetings:
<ul style="list-style-type: none"> ✓ Seven to eight older adults in every group ✓ 12 group meetings spanning over nine months in time ✓ An occupational therapist and a physiotherapist as group leaders ✓ Professionals/experts invited to three different group meetings (dietician, nurse and a social worker) ✓ Presentation of the subject for today, followed by round-table discussions ✓ Group exercise at every meeting ✓ In-home balance training - instructed to be performed every day ✓ Two individually-tailored home visits ✓ Field visits together in the group ✓ Standardised material in the form of a binder for every participant and group leader ✓ The group leaders all participated in a six-hour workshop prior to the implementation of the programme 	<ol style="list-style-type: none"> 1. Introduction to Falls and Fall Injuries 2. The importance of physical exercise 3. Engagement in meaningful occupations 4. Strength and balance 5. The natural aging process - The use of medication and avoiding polypharmacy (nurse) 6. Lifestyle - Everyday occupations - Assistive technology - Home safety 7. Nutrition and routines around meals (dietician) 8. Fear of falling and the environment 9. The municipality and its service/ The retiree organisations (social worker) 10. Participation - field visit 11. 12. 2 x Follow-up (revision of chosen subjects)

Figure 1. The structure and the content of the programme.

Evidence Based Practice (EBP)

The overall purpose of EBP is to assist in clinical decision-making (Hoffmann, Bennett, & Del Mar, 2013). Working from the approach of EBP it underpins the possibilities to improve therapeutic quality to the clients and in an ecological way contribute to cost effectiveness. The emergence of EBP must be based on both qualitative as well as quantitative sources displaying various perspectives to fully understand the multifaceted occupational lives of clients (Kottorp & Fisher, 2015). In this thesis, EBP is defined as practice hinging on four cornerstones: clinical expertise from health professionals, research evidence, information from the practice context and client-centredness (Fisher & Kottorp, 2015; Hoffmann, et al., 2013). The clinical process of EBP, which combines and incorporates these cornerstones, is referred to as clinical reasoning (Mattingly & Hayes Fleming, 1994; Turpin & Higgs, 2013), and serves as an imperative tool in rehabilitation work with clients.

Based on the purpose and definition of EBP described above, the falls-prevention programme is in line with this approach in practice. First of all the programme was developed based on multidisciplinary clinical expertise. Secondly, high quality research evidence (e.g. RCT and meta-analysis) was incorporated in the content of the programme. Thirdly, the programme was outlined to meet the needs of preventive interventions in the context of primary health care. In addition, the approach of client-centredness was applied in a multilevel way throughout the programme. In the endeavour to use the principals of EBP it is also imperative, from an occupational perspective, to use *"intervention and evaluation methods that reflect the central power of occupation"* (Fisher, 2013). As such, occupational therapy has vast potential to influence falls prevention both in practice as well as in policies generating active ageing (Peterson, Finlayson, Elliott, Painter, & Clemson, 2012).

RATIONALE OF THE THESIS

In Sweden, the ageing population is increasing and evidence-based interventions addressing, among other threats, accidental falls and the consequences are required. Extensive research concerning how to prevent falls and the consequences has been reported. Despite the significant knowledge gained from research, falls-prevention interventions are still lacking in multifactorial content and implementation to clinical practice. When adopting a multifactorial approach in addressing falls and the consequences this also highlights the importance of using adequate learning strategies in programme delivery. From an occupational perspective, it is important to clarify and apply the connection between engagement in valued activities and well-being in clinical practice.

In, Sweden, to our knowledge no standardised falls-prevention programme has been developed or implemented in an evidence-based way, built on the principles and approaches described above. This absence of preventive evidence-based intervention in primary health care leaves therapists unable to work ethically, effectively or in accordance with guidelines. In addition, for the older adults, this lack of EBP jeopardises the possibilities of the individual's participation and active ageing. Lastly, the non-use of effective principals for rehabilitation work may also increase the risk of escalated costs for the society.

From the knowledge gap described, the new multifactorial falls-prevention programme was developed and implemented in primary health care. Moreover, within this thesis it was evaluated using various approaches.

The assumed reciprocal relationship between health or well-being and engagement in valued activities is the foundation of the occupational perspective in this thesis. This perspective, in relation to falls and the consequences for the older adults, rationalises and guides the aims of the thesis as well as the choices of methods and measures.

RESEARCH AIMS

The overall aim for this thesis was to contribute new knowledge that reflects experiences from, and efficacy of the programme - Active Lifestyle all Your Life- in relation to everyday occupations among community-dwelling older adults at risk of falling.

Specific research aims:

- To explore and understand therapists' experiences of working as group leaders in the programme, and their reflections on the programme's impact for the older adults, (Study I).
- To explore and understand if, and how, participating in the programme influenced each individual's everyday life narratives, focusing on participation and engagement in valued activities, (Study II).
- To evaluate the effectiveness of the programme on the experiences of participation and autonomy in everyday occupations, (Study III).
- To evaluate the efficacy of the programme in measures of falls and fear of falling, (Study IV).

METHODS

Study Context and Design

As the overall aim of the studies was to build new knowledge about the impact and efficacy of the falls-prevention programme, the context for this thesis is to be found within the intervention project and the programme - Active Lifestyle all Your Life. Nine different primary health care units in the county of Stockholm participated and delivered the programme. Therefore, all the individuals in the four studies were included in the same cohort as participants in the falls-prevention programme. In Table 1, an overview of the methods used in the four studies is found.

Table 1. An overview of the methods used in the four different studies

	Study I	Study II	Study III	Study IV
Aim	To explore and understand the therapists' experiences of working as group leaders in the programme.	To explore and understand if, and how, participating in the programme influenced each individual's everyday life narratives.	To evaluate the effectiveness of the programme on the subjective experiences of participation and autonomy in everyday occupations.	To evaluate the efficacy of the programme in the measurements of falls and fear of falling.
Design/ Research approach	Qualitative approach, with focus-group interviews.	Qualitative approach, with recurring narratives over one year.	Quantitative Randomised Controlled Trial design.	Quantitative Randomised Controlled Trial design.
Participants	15 of the total of 18 therapists working as group leaders in the programme.	Six participants selected from the total sample.	A total sample size of 131 individuals, 74 in the intervention group and 57 participants in the control group.	A total sample size of 131 individuals, 74 in the intervention group and 57 participants in the control group.
Data collections (methods and measures)	Three focus group sessions were performed. Focus group methodology and principals from Grounded Theory.	Three individual interviews over time. Narrative approach.	Standardised interviews at baseline and at 12-month follow-up. Outcome Measures: <i>IPA –S and OGO</i>	Standardised interviews at baseline and at 12-month follow-up. Outcome Measures: <i>Falls and fear of falling</i>
Data analysis	Constant comparative	Thematic analysis	Intention-to-treat approach Descriptive statistics, multiple logistic regression models	Intention-to-treat approach, Descriptive statistics, multiple logistic regression models
Context of data collection	University, Swedish Institute of Assistive Technology, and Primary Health Care clinic	Participants' own homes (one of the participants chose to have the interviews at the health care clinic)	Primary Health Care clinics or the participants' own homes	Primary Health Care clinics or the participants' own homes

The Programme - Active Lifestyle all your life - in the local context

The programme was implemented among older adults, over the age of 65, at nine different primary care units in Stockholm, Sweden, during 2011. Throughout the programme, all of the group leaders used the standardised material developed for this programme and every participant was supplied with a complete set of this material in a binder. Each study group met for two hours biweekly at the primary care unit near the older adults' homes over a period of six months together with two booster sessions in month nine. In total, all the groups met 12 times during a nine-month period. At every group meeting different themes were addressed, all related to the prevention of falls from multifactorial perspectives. Practical engagement in discussions, in exercises (balance training) and in home assignments was encouraged by the group leaders to facilitate experience of participation and autonomy. Information about the individuals' specific experiences of and coping with falls and fear of falling was shared and reinforced within the context of the groups thus creating a unique learning environment. Every group meeting consisted of one theoretical part based on the predetermined theme, time for coffee and refreshments and also balance exercises at the end.

Participants

As the overall design of the study was that of a Randomised Controlled Trial (RCT), the recruitment of the participants was completed as follow. Nine different primary health care units signed up to participate in the project. The occupational therapists and the physiotherapists (n=18) at the health care units were responsible for the recruitment of the participants into their own groups. Community-dwelling older adults over 65 years of age were invited to participate, using convenience sampling. The participants could either be current patients at the clinic, patients referred to the programme from a physician at the clinic or patients who saw an advertisement in the waiting area at the clinic or heard about the project elsewhere. The enrolment of the participants into the programme followed the inclusion criteria: one or more accidental fall(s) during the last year and/or one or more fall incident(s) (trip, slip or stumble) and/or reported concerns about falling. Exclusion criteria: cognitive impairments, documented psychiatric problems that make participation in organised group activities impossible and/or considerable difficulties in understanding and speaking the Swedish language. The enrolment of the participants continued between February and September 2011.

Randomisation and blinding

The aim was to include 16 participants from each primary care unit. After receiving informed consent and conducting baseline measures, the sample was as a first step randomly allocated by a blinded research assistant, using block randomisation (Machin, Campbell, & Walters, 2007). Allocation was done to ensure equal sizes of the two groups at every primary health care unit, using blocks of four. Group size was set to eight in each group to facilitate group dynamic as this provides "*opportunities*

for discussions, reflections and consolidation of learning” (McKimm & Morris, 2009). Thus, a total of 16 patients were to be enrolled at each primary health care unit. However, due to lack of eligible patients in some of the primary health care areas, an additional randomisation procedure had to be performed. This was done by relocating some of the participants in the control groups to the intervention groups to ensure that a group intervention was feasible. The second procedure of randomisation was performed by throwing a dice and was done by the same research assistant. Fewer participants than 7-8 in the intervention groups would have diminished the potential for group dynamics. Finally, the procedure of randomisation resulted in 74 in the intervention group, and 57 participants in the control group. The control group acted as waiting-list controls during the 12-month study period and was measured at the same points in time as the intervention group and received “standard primary health care” if required. After the 12-month follow-up, the control group was invited to participate in the falls-prevention programme.

Data collection

Study I

The collection of data for the study of the group leaders was performed using focus group methodology. First, all the therapists were invited to take part. Of the 18 therapists who worked as group leaders, 15 agreed to participate. Three of the therapists were unable to participate on account of their ordinary work schedule. Eight of the participants were occupational therapists (OT) and seven were physiotherapists (PT). Three focus groups were formed and they consisted of a mix of therapists on every occasion. The decision to include both OTs and PTs together in each focus group aimed at establishing heterogeneity in professional identity and experience, since it is recommended that both homogeneity and heterogeneity are recognised in focus groups (Morgan & Kruger, 1998). In addition, we tried to facilitate a mix of primary health care centres as well, so that not all the participants would end up in the same focus group as their team partner. The participants were all experienced therapists with a variety of working years in primary healthcare. Common to all of the focus groups was the shared interest in professional development and in research within the area of fall prevention. All three focus-group sessions were moderated by the first author and co-moderated by the last author of study I. The moderator’s role was to facilitate discussions and interactions between the focus-group participants. To enable the participants to share their experiences from being group leaders questions such as the following were used: Could you describe your experiences of being group leaders working in this programme? and, Could you describe your experiences of what the older adults in the study groups embraced in the programme? The co-moderator had the role of active observer, writing notes and asking complementary questions to clarify the interpretations if the discussions became too general. Findings from the first focus group were used to adjust and further explore the topics for discussion in the second and third focus groups by initial coding and the use of memo writing. Each of

the three focus groups met once, the sessions lasted between 70 and 100 minutes and they were all audiorecorded.

Study II

To include participants in study II, six individuals were purposefully selected from the sample of participants in the programme (n=74), to achieve maximum variation. The variation was based on sex, age, living situation, and education. The first author carried out this purposeful sampling and the participants came from two different primary care areas. These informants were asked to participate in three recurring interviews each, over 10 months, taking place before entering the programme, in the middle of it and after completion of the programme. All of the informants completed the whole programme. The first author conducted the interviews using a few open questions formulated in an interview guide based on the aim of the study (Kvale & Brinkmann, 2010), the intention being to invite the informants to narrate their story. To allow the informant's story to unfold, the collection of the narrative material should take the form of an open approach (Kielhofner, 2008). All interviews were performed in the informants' homes with the exception of one individual for whom they always took place in the clinic. The questions used were aimed to explore and understand the informant's narratives focusing on participation and engagement in valued activities in the context of an accidental fall and the falls-prevention programme. As narratives connect past, present and future they shape how we perceive our occupational life (Kielhofner, 2008). Later in the interviews, probing questions (Kvale & Brinkmann, 2010) were used to clarify and deepen the informants' narrated stories on the topic of interest. All the interviews were audio-recorded and lasted between 30–70 minutes. Field notes were made after each of the interviews. In order to try to grasp the informant's process over time, the first and later the second interview were listened to before the subsequent interviews to be able to formulate relevant follow-up questions for the interviews to come. At the second and third interview, the first part was the same for all the informants and the second part individually tailored from the earlier interviews.

Study III and IV

These studies were pilot randomised controlled single-blind two-armed trials (ClinicalTrials.gov Identifier: NCT01391728) which followed the design for presentation as outlined in CONSORT (Boutron, Moher, Altman, Schulz, & Ravaud, 2008). A database created for this study at Karolinska Institutet was approved and registered with the number: KI-2500/11-631. Baseline assessments in a standardised interview format were performed at the primary healthcare unit from which the participants had been recruited. A standardised interview format was administered by the researchers to collect outcome data e.g. the researchers had the instruments/questionnaires and read each question out loud and marked the answer given by the participant. The baseline measures comprised of a background questionnaire on demographics, the same for both of the studies. In study III, the Impact on Perceived Participation and Autonomy, Swedish version (IPA-S) (Cardol, de Haan, van den Boz,

de Jong, & de Groot, 1999; Lund, Fisher, Lexell, & Bernspang, 2007) and the Occupational Gaps Questionnaire (OGQ) (Eriksson, Kottorp, Borg, & Tham, 2009; Eriksson, Tham, & Kottorp, 2013) were used as outcome measurements. In addition, as baseline measurements the Falls Efficacy Scale (FES-S) (Hellström, Lindmark, & Fugl-Meyer, 2002) instrument was used (in study IV), to measure the experience of efficacy in relation to mastering daily activities without falling and the Occupational Gaps Questionnaire (OGQ) was used to measure to what extent a person performs the everyday activities he or she desires. Further, to capture the overall subjective health status the SF-12 Swedish version was also used (Gandek et al., 1998; Ware et al., 1997) in study IV. To measure both accidental falls and fear of falling (study IV) the following questions were used at baseline: Have you fallen during the last six months? and Are you afraid of falling? Data were collected at baseline (0) and at follow-up (12 months) in both of the studies. The time for follow-up was set at three months post end of the programme. The goal in doing so was to capture the potential sustained impact of the programme on participation and autonomy, rather than to only assess any immediate impact. Prior to the assessments, as one attempt to ensure inter-rated reliability, the data collectors performed four assessments together and discussed how to document the measurements. The flow of the participants through the study is presented in Figure 2.

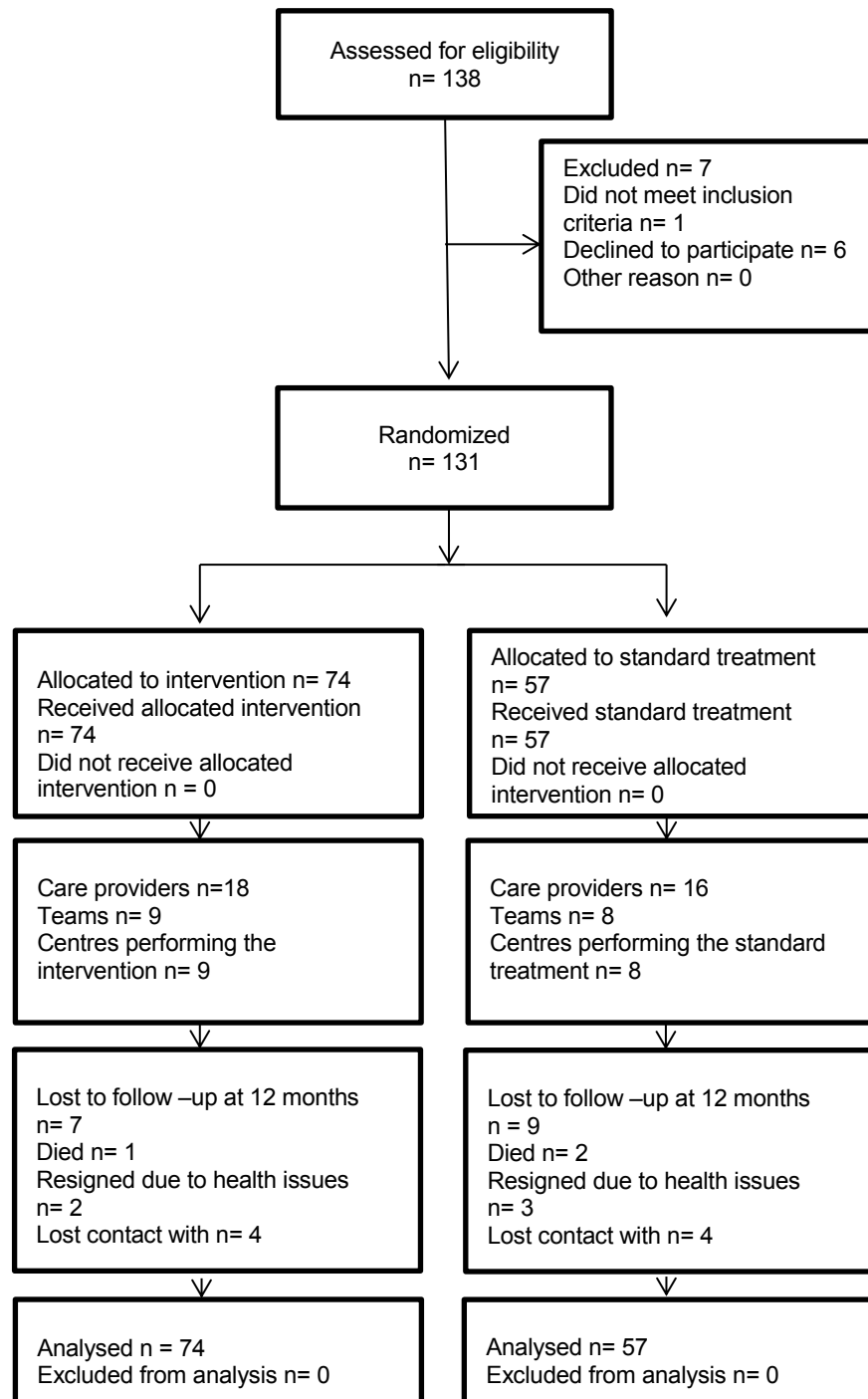


Figure 2. The flow of the participants through the study.

Outcome Measures

The Impact on Participation and Autonomy Questionnaire Scale Swedish version (IPA-S)

The IPA-S (Lund, et al., 2007) is the Swedish version of the instrument IPA (Cardol, et al., 1999; Cardol, et al., 2002) and has been developed to assess the individual's subjective experience of perceived participation and autonomy in everyday life. The aim of using the IPA-S in this study was to measure a person's perceived participation and autonomy in four domains: autonomy indoors, autonomy outdoors, family role and social relationships. Participation in these domains is addressed in different items (n=31) and estimated on a five-point scale ranging from very good to very poor (0-4) and is presented as standardised means per domain (scores summed per domain and divided by number of domain items). One additional domain, work and education, was excluded in this study due to the participants' stage in life. The IPA-S also assesses the experiences of perceived problems with participation in seven items: mobility, self-care, family role, finances, leisure, social relations, and helping and supporting others. Also here the items work and education were excluded. Perceived problems with participation were estimated on a three-point scale ranging from no problem to severe problems (0-2). On both IPA-S scales a higher score represents more extensive participation restrictions. The instrument has supported internal scale validity, reliability and reported moderate responsiveness, i.e. possibilities to detect within-person improvement over time (Cardol, et al., 2002; Lund, et al., 2007).

The Occupational Gaps Questionnaire (OGQ)

The OGQ (Eriksson, et al., 2013) was developed to measure perceived occupational gaps in everyday occupations. An occupational gap is defined as a gap that is made visible between to what extent an individual performs the everyday occupations that he or she wants to or desires. The presence of occupational gaps is examined and summarised for 28 occupations including, eight instrumental activities of daily living, six social activities, 10 leisure activities and four work-related activities (maximum score=28). A higher score represents more occupational gaps in everyday occupations, which should be interpreted as negative for the individual. The instrument has been tested to show acceptable reliability and validity, as described elsewhere (Eriksson, et al., 2009; Eriksson, et al., 2013).

SF-12 Swedish version

To measure the self-rated health within the individuals the Swedish SF-12 Short form Health survey (SF-12) was chosen (Ware, Kosinski, & Keller, 1996; Ware, et al., 1997). The instrument was used at baseline and follow-up. The original instrument the SF-36 health survey, which the SF-12 is produced from, is used widely in larger studies of the individuals' self-rated health but can be experienced as too detailed and time consuming when used. It has thereby been suggested that a shorter version the SF-

36 is more easily administered and gives satisfactory result according measurement precision (Ware, et al., 1997) and shows a plausible alternative for measuring the health status.

Questions regarding falls and fear of falling

To measure both accidental falls and fear of falling at baseline the following questions were used: Have you fallen during the last six months? and Are you afraid of falling? Those questions were repeated at follow-up with one difference, the retrospect time for the fall question was three month. The answer to both of the questions were dichotomous, Yes/No.

Data analysis

Study I

When working with analyses of qualitative data it is imperative to stay close to the data and by doing so minimise the risk of forcing the data into codes that are influenced by the researchers presumptions. As one example, the presumptions of mechanisms that facilitate active agents for behaviour change might be influenced by the occupational perspective previously stated (Kielhofner, 2008; Yerxa, 2000). To prevent forcing the data into codes emerging from that theoretical perspective the initial coding was performed sequence-by-sequence (Charmaz, 2006) as one attempt to keep close to the data. In this coding, the point of departure was the aim of the study and the focus was to explore how the therapists had experienced their role as group leaders and their reflections on good outcomes of the programme. The initial coding was performed after each of the three focus groups discussions. This was followed by the second step in the process that aimed to synthesize and explain larger segments of data (codes) into categories. Examples from this step of the analysis were how the codes – to create possibilities for the individuals to engage in discussions and to participate in the group – were analysed as belonging to the category “The group leaders moved between the role of expert and the role of facilitator”. Another example was when the group worked as an amplifier for behaviour change and this was analysed as belonging to the category “The group climate facilitated the translation of expert knowledge to applied knowledge”. Through this back-and-forth process, the chosen methodology of using focus groups that strive to capture the discussions among the participants concerning differences and similarities in the topic of interest results in the formation of categories. The third step in the process of analysing the data was the process of the theoretical coding in which the previously formed categories were interrelated (Charmaz, 2006). Along with this overall process of coding and building categories, memo writing was used to analyse the discussions. All three authors participated in the process of analysing the data by using a constant comparative approach (Charmaz, 2006) in the grounding of categories. The second author, who had not participated in the focus-group sessions, was actively engaged in the critical appraisal of the coding process in order to establish trustworthiness. The findings were discussed by all of the authors repeatedly, and the

constant comparative approach (Charmaz, 2006) led the process back and forth between the written interviews, the codes, and the categories until the data no longer added new properties and a consensus was reached between the authors when forming the final categories. It was possible to create three final interrelated categories based on the aim of the study and also from what emerged from the coding.

Study II

The participants' stories were organised in a temporal dimension and then analysed across different individual stories as in the form of thematic analysis outlined by Polkinghorne (1995) and described by Reissman (2008). Firstly, all data, including the field notes, were transcribed and closely read by the first and second author. The narratives from the participants consisted of rich data and addressed everyday life in general and valued activities in particular. As a second step, the authors rewrote each of the individual's three narratives into one temporal ordered story, which then was analysed as a whole (Riessmann, 2008). Thirdly, the authors tried to follow the thematic process more deeply by identifying and creating coded themes which were used to illustrate patterns across the cases compared, holding the different narratives intact as a whole story (Riessmann, 2008) and also by using the field notes. The thematic analysis relied on the concept that along with what was unique in every individual narrative a set of common attributes across the different stories could be found and described. To ensure that the themes were grounded in the data, a comparative approach was used as the themes were compared with each of the individual's narratives but also rechecked against all data. The second author, who had not participated in the interviews, actively engaged in the critical appraisal of the coding process. The findings were discussed and the comparative approach led the process back and forth between the written narratives and the themes until a consensus was reached between the authors when forming the final themes.

Study III and IV

Data from baseline and at 12 months were analysed in both of the studies. All results were analysed using the Statistical Packages for Social Sciences (SPSS) for Windows Standard version 21. The baseline characteristics and measures of the participants were compared using bivariate analyses to investigate differences between the samples. The Mann-Whitney U-test was used for the ordinal level variables, and the t-test was used for the continuous variables (Machin, et al., 2007). P-values of 0.05 were considered statistically significant in all analysis (Wang & Bakhai, 2006). Follow-up assessments were performed three months after the end of the programme (12 months after baseline), and they were completed by 88% of the participants. Intention-to-treat analysis (ITT) was used (Machin, et al., 2007; Wang & Bakhai, 2006). Perceived participation scores and performance of everyday occupations were summarised using descriptive statistics for both groups (study III). Perceived participation was analysed within the four domains, considering various numbers of items and using descriptive statistics including both standard deviation and standardised mean (domain

mean divided by domain items). To compare and evaluate both groups at 12 months, we calculated the standardised mean and confidence interval based on the mean change in each domain over time (IPA12-IPA0) per group. The second scale in the IPA, the problem scale, was analysed according to the mean change of experienced problems over time within the two groups. Furthermore, we analysed this second scale in a generalised estimate equation model (GEE), where the IPA problem scale was dichotomised into no perceived problems and perceived problems. The logistic regression model was used to calculate the odds of perceived problems. Statistical analysis was performed to identify whether any changes in the outcome at 12 months could be explained by the group allocation, the time, or the interaction between group and time. The model uses estimates for missing values. Regarding the secondary outcome measure in study III, the OGQ, the frequencies of occupational gaps were summarised and the data analysed using descriptive statistics based on the change of median for the summarised gaps according to the groups (OGQ12-OGQ0).

For the primary outcome as well as for the secondary outcome in study IV, analyses with descriptive statistics were performed in order to investigate relationships between the variables and to decide on what data to use as independent variables for the models investigating the odds of an event. In addition, data from falls and fear of falling were analysed in relation to risk using multiple logistic regression models all performed in SAS. Mixed models for repeated measures, the risks as well as the change in the risk over time were calculated in GEE, comparing the measures from the two groups over time and then presented in Odds Ratio (OR). The odds of an event, in this study falls or fear of falling, are defined as the ratio of the probability of occurrence of the event to the probability of non-occurrence i.e. the prediction of binary outcomes (Machin, et al., 2007). The correlations between the persons were adjusted for within these models. The calculation of trends as the interaction between group and time was also included in the analysis. By using the interaction effect, the models were able to demonstrate whether there were any non-parallel changes between the intervention and the control group. Besides the dependent variable (falls or fear of falling), the variables included in the final models were: group allocation, age, gender, time, group x time (and the MCS scale score from the SF-12 in the model for fear of falling).

Ethical considerations

All the participants were invited to participate in the studies and both oral and written consent were collected. The participants were informed, both orally and in writing, of the voluntary nature of the participation in the study and that they could withdrawal at any time and without specified reasons. Further, the participants were informed, in person, about the structure and content of the studies together with the time frame of the study period. The participants were also informed about the procedure of randomisation to either intervention group or control group. Additionally information about the control group as waiting-list controls was presented, meaning that the participants were

informed that after the 12-month follow up they should be offered participation in the programme. The participants were also informed of how the data were anonymised and stored. Ethical approval for the studies was obtained from the General Board of Ethics Stockholm, dnr: 2009/1518-31/4.

Implementing a new programme into clinical practice with the use of randomised controlled trial methodology is always associated with ethical dilemmas. Despite the fact that the controls should be offered participation in the programme after the follow-up period, the delayed falls prevention could be negative for the individuals. As all of the participants in the sample were at risk of accidental falls it might have been unethical to delay the participation in the programme. Another ethical issue concerns the repeated measurement of the participants. During the year in which the participants were followed the researchers met them and telephoned them on several occasions. This procedure might have been tiresome for the individuals and they might have felt that they had to volunteer to be followed in order to take part in the programme.

RESULTS

In this section the results from the different studies will be presented. Firstly, an account of the therapists' experiences from working as group leaders will be provided. Secondly, the experiences from the participants on the programmes regarding impact on their everyday life will be presented. Then, the impact of the group-base format of the programme is portrayed. And finally, the efficacy of the programme regarding falls, fear of falling and impact on perceived participation will be presented.

The therapists' experiences

The analysis revealed that a process of change in the role of being a group leader had taken place during the programme. The therapists, for example, all stated how they created a climate for a dynamic process of change to take place within the study groups. Three primary categories pertaining to this process were identified: (i) the group leaders moved between the role of an expert and the role of a facilitator; (ii) the group climate facilitated the translation of expert knowledge to applied knowledge, and (iii) increased awareness as a prerequisite for change, se Figure 3.

The group leaders described the beginning of a change in their professional role when they reflected upon how it was challenged by the new approach of client-centredness and group focus. Over time a complementary professional role emerged. The therapists described this process as moving away from the role of "the expert" in order to allow for the development of a climate that contributed to more active involvement and engagement in the study groups, on the part of the older adults. By taking on

the role of facilitators instead of “experts” the group dynamics could evolve and created space for more active engagement and discussions.

Furthermore, the therapists also described that the older adults were engaged in a reciprocal process of group learning, in a way that they as “experts” could never have accomplished within “patient-therapist interventions”. They exemplified how they could list all the risks for accidental falls but how that created another, different knowledge than when peer learning in a small group environment is used. When the older adults in the groups started to discuss and reflect on the expert knowledge presented in relation to their own experiences in everyday lives they showed engagement and enthusiasm. This was embodied as a translation of the mediated expert knowledge processed in the groups using the linkage to everyday occupations, to applied knowledge. The therapists described the knowledge translation as leading to a behaviour change. Further, the multi-disciplinary approach in the programme created possibilities to learn from other professionals both when working together as group leaders but also in the collaboration with the professionals invited to participate such as the dietician, the nurse and the social worker. This multi-disciplinary base was put forward by the group leaders as enriching their own professional role, in conjunction with the emerging role as facilitators. Both the expert role and the role as a facilitator were needed.

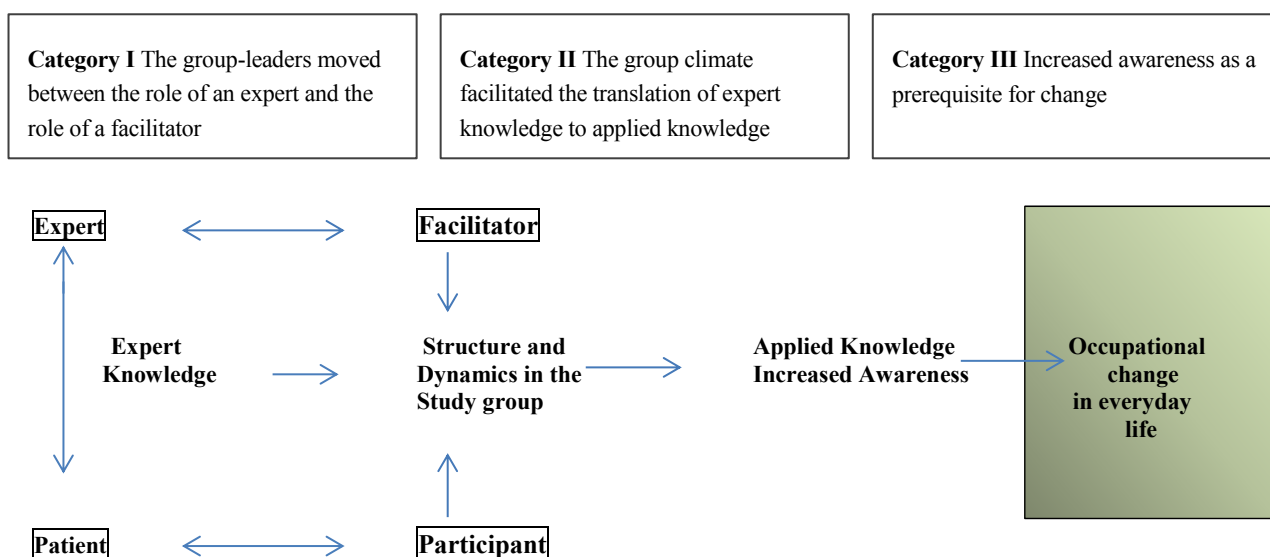


Figure 3. Illustration of the process of transformation of knowledge in connection with the three categories in the analysis. *Reprinted with permission* (Johansson, Borell, & Jonsson, 2014).

The impact of the programme on the narrated everyday occupations

In study II, the six informants described and exemplified that they were engaged in many different occupations of everyday life. However, the narratives highlighted experiences of physical decline caused by ageing and of adjustment to this decline. Another experience described, was how the informants had to adapt to this physical decline caused by ageing through acceptance and modifications of the way in which the occupations were performed. Occupations had to be modified; they had to be planned, initiated, and performed in another way or at another pace. One informant described the process of ageing in this way:

”You need to learn how to live your ageing life... to accept and be at ease with that life is not what it used to be...that everyday occupations need to be performed in a new way or needs to be planned more in detail to be performed.”

All the informants described their occupations of daily life as narrowed or altered over their lifespan. According to the different life stories they all had different preconceptions about accidental falls and fall incidents. Some had fallen often, been badly hurt, and thereby described a feeling of anxiety that affected their occupations of daily life. For other individuals their stories described only minor incidents, e.g. tripping, slipping or stumbling, that were extenuated and toned down as just random bad luck. As such, the expectations on the fall-preventing programme were diverse in the group of informants. Altogether these diverse experiences mirrored the complexity and uniqueness in every human and affected the informants’ experiences of the programme. The informants described the experiences from the programme in terms of how, over time, they gained insights both into a general level but also into a more specific level. These insights were narrated as increased awareness based on the explicit knowledge about fall hazards related to everyday occupations and engagement in valued activities as well as participation in the society. The greater knowledge and increased awareness did not however create an increased fear of falling. As a result of participating in the programme the informants described how its impact provided opportunities to establish new habits, based on the increased awareness. From the beginning, the change only concerned a single phenomenon or an isolated activity but over time new habits was established and led to an automatic change of performance. One of the informants described how he experienced his own behaviour change through the creation of a new habit:

“...yesterday you know I started to cut the hedge, on this side, but my neighbour has to cut the other side. This is that kind of job, in a new way, as I before always cut the whole hedge on the same day. Nowadays I cut one piece of it one day and another piece another day. This gives my body a balanced challenge and I realise how it makes me feel better and safer. I don’t think of it that much, that I’ve made a change it’s almost as if I’ve always done it in this way. Yes I noticed that I still climb onto that small footstool and reach up but I feel more

cautious now and when I'm not so tired in my body, a bit more safe. I've thought about this and all the things that I do in another way, how the programme made me make the change, that I suddenly realise that different occupations could cause a fall accident and I could get hurt, that could lead to something serious."

They described how they understood through this increased awareness how the environment both could make an impact on their valued occupations as a restriction but also as support, and how this over time made them start to reflect on actions for themselves to implement as strategies and eventually new habits.

The group as amplifier of knowledge translation

The older adults described how it was easier to make changes in their everyday occupations or environment if the change had been a topic for discussions in the group meetings and had thereby been exemplified from another participant's perspective. To hear and learn from others was a valued learning strategy and for some informants it was experienced as a prerequisite for increased awareness. Other experiences from the group-base format of the programme concerned an extended dimension of learning. This learning approach provided opportunities for behaviour change and translation of knowledge. One of the informants described how her desire to share personal experiences with others had emerged over time in the programme. The emergent desire to share experiences was motivated by the feelings of how the other informants valued her experiences and how interesting discussions emerged. The feeling of membership within the group was important and the group dynamics evolved over time along with the familiarisation in the group. By using the group discussions of the expert knowledge presented, the participants could relate and connect the knowledge to their everyday life. When this connection was made to the individual everyday occupations, the expert knowledge was transformed to applied knowledge and described as a prerequisite for change of behaviour. The group base format of the programme also facilitated the adherence to the fulfilment of the programme, despite the longitudinal design of it. The group and the extended time frame of the programme was also described as an important factor in being able to incorporate the meaning of the importance of adopting an active lifestyle and the continuation of engagement in valued activities. However, the engagement in a group programme was not an entirely positive experience according to some of the informants' narratives. Hearing impairment was exemplified as a major threat to participation in discussions. It created challenges in the interpretation of the knowledge communicated by the professionals in the group sessions. Feelings of insecurity and misunderstanding of important facts were described. With respect to some of the informants, the impact of the group format of the programme was basically described in social terms.

The programmes efficacy on falls and fear of falling, impact on engagement in valued activities and perceived participation.

There were no statistically significant differences between the two groups with respect to the characteristics of the participants at baseline. The mean age was 76.4 years in the intervention group and 75.9 years in the control group. About two-thirds of the participants used some kind of walking support and one-third in each group used a walker, (see Table 2). No association could be found between fear of falling and accidental falls at baseline. Furthermore, there were no differences between the two groups on the SF-12 measures at follow-up. An analysis of the baseline variables and the outcome measures for the non-respondents at follow-up (n=16) showed that these participants did not differ from the participants who completed the trial.

Table 2. Characteristics of participants at baseline

	Intervention group (n=74)	Control group (n=57)
Gender Female/Male (Male %)	59/15 (20%)	51/6 (11%)
Mean age (SD)	76.4 (6.10)	75.9 (6.89)
Falls Q: Have you fallen within 6 months (%)	42 (56.8%)	34 (59.6%)
Fear of falling Q: Are you afraid of falling? (%)	53 (71.6%)	34 (59.6%)
Living alone (%)	47 (64%)	29 (51%)
Help with cleaning (%)	10 (14%)	2 (4%)
Level difference (e.g. stairs) to get in or out of home (%)	43 (58%)	40 (70%)
User of walker (%)	23 (31%)	19 (33%)
User of any walking support (%)	44 (59%)	29 (51%)
Frail, more than three diagnoses (%)	34 (46%)	26 (46%)
Occupational gaps questionnaire ^a , median	3	3
Falls efficacy Scale FES-S ^b , mean	102	104
Self-rated quality of Life, SF-12 ^c Physical scale score (PCS)	36.53	38.36
Self-rated quality of life, SF-12 ^c Mental scale score (MCS)	49.08	48.19

^a Occupational Gaps Questionnaire measures to what extent a person experiences discrepancies between occupations he or she wants to perform and actually performs

^b Falls efficacy scale measures to what extent a person experiences confidence in one's own ability to perform 13 activities without falling. A higher score indicates higher confidence, max=130.

^c Short-Form 12 measures the individuals subjective experiences of their health resulting in two scores, physical scale score and mental scale score. Higher score represent more positive experiences of own health.

Falls

At baseline 57% in the intervention group and 60% in the control group had fallen. There were no measures supporting the view that the participants who had fallen at baseline were different from the non-fallers in the baseline characteristics. At follow-up the falls rate in the intervention group was 12% compared with 36% in the control group. The risk of having an accidental fall at 12 months was statistically significantly lower for the participants in the intervention group in comparison to the risk in the control group ($p=0.005$). However, when using the model and taking into account the baseline measures of falls a significant decrease in the odds was observed in both groups. As both groups showed a decrease in falls over time this made the result between groups over time non-significant ($p=0.059$) even though the risk decreased largely in the intervention group, see Table 3 for detailed information. Within the intervention group at follow-up the remaining risk of having a fall was only 11% in comparison with the risk at baseline. In the control group the remaining risk was 34% in comparison with the measurement at baseline. Looking at factors predicting an accidental fall at 12 months, the only significance was found in relation to being allocated to the intervention group. In addition, a higher rating on the mental scale score of SF-12 at baseline indicated a decrease in the risk of a fall at follow-up ($OR=0.95$) in the total sample.

Fear of falling

In the intervention group, 72% stated that they experienced fear of falling compared with 60% within the controls at baseline. At follow-up a significant decrease in the fear of falling was measured in the intervention group, in comparison with the control group, both regarding measures at 12 months ($p=0.003$), and over time, compared with the baseline measures ($p=0.001$), see Table 3 for more details. In addition, the change within the intervention group showed a retained risk of 15% for fear at follow-up in comparison with the risk at baseline ($p=0.001$). The control group showed instead an increase in the odds for fear of falling over time measured as $OR=1.34$. Furthermore, the statistics indicated that the presence of fear of falling at baseline was likely to remain at follow-up ($OR=2.9$). Thus, in the total sample the predicting factors for fear of falling at follow-up were: fear of falling at baseline, being in the control group, and lower rating on the mental score scale on the SF-12.

Table 3. The risk of falls and fear of falling at 12 months follow-up.

	Odds Ratio/ OR ^b	OR Lower CI ^c	OR Upper CI ^c	P-value
Falls at 12 months ^a . Intervention Vs Control.	0.248	0.092	0.665	0.005*
Falls at 12 months ^a in comparison with baseline measures. Intervention Vs Control.	0.332	0.105	1.046	0.059
Fear of falling at 12 months ^d . Intervention Vs Control.	0.123	0.128	0.667	0.003*
Fear of falling in comparison with baseline measures. Intervention Vs Control.	0.117	0.040	0.342	0.001*

* Significant

^a The measures were based on the questions: Have you fallen within the last six (baseline) three (follow-up) months?

^b Odds Ratio (OR)

^c Estimates and Profile-Likelihood Confidence Intervals (CI) for the risk of falls and fear of falling.

^d The measure was based on the question: Are you afraid of falling?.

Impact on Participation and Autonomy

At baseline, the older adults in both groups experienced their participation and autonomy in the four different domains in the IPA-S subscale as ranging between very good to fair. At follow-up, there were no statistically significant differences between the control and the intervention group in any of the four domains. The intervention group had however made a slight improvement regarding the Autonomy Outdoors and Family Role domains, but the standard deviation (SD) within the groups indicated wide variation and rendered the results inconclusive. Regarding the second IPA-S scale, the amount of perceived problems with participation, the results from baseline showed that for all of the seven domains both groups experienced low levels of perceived problems in all but the Mobility domain. However, the analysis at follow-up revealed that the experiences for the intervention group regarding perceived problems with participation relating to the domains Self-Care, Financial Situation and Leisure had improved at 12 months. Within the domains of Social Life and Helping and Supporting Others, both the intervention and the control group showed increased experience of problems. However, the results from the intervention group demonstrated a minor decrease in comparison with the controls within all of the domains. As such, the control group experienced a 10.2% larger decline in the mean change scores in the Social Life domain and a 15.5% larger decline in the domain of Helping and Supporting Others in comparison with the change scores in the intervention-group, see figure 4.

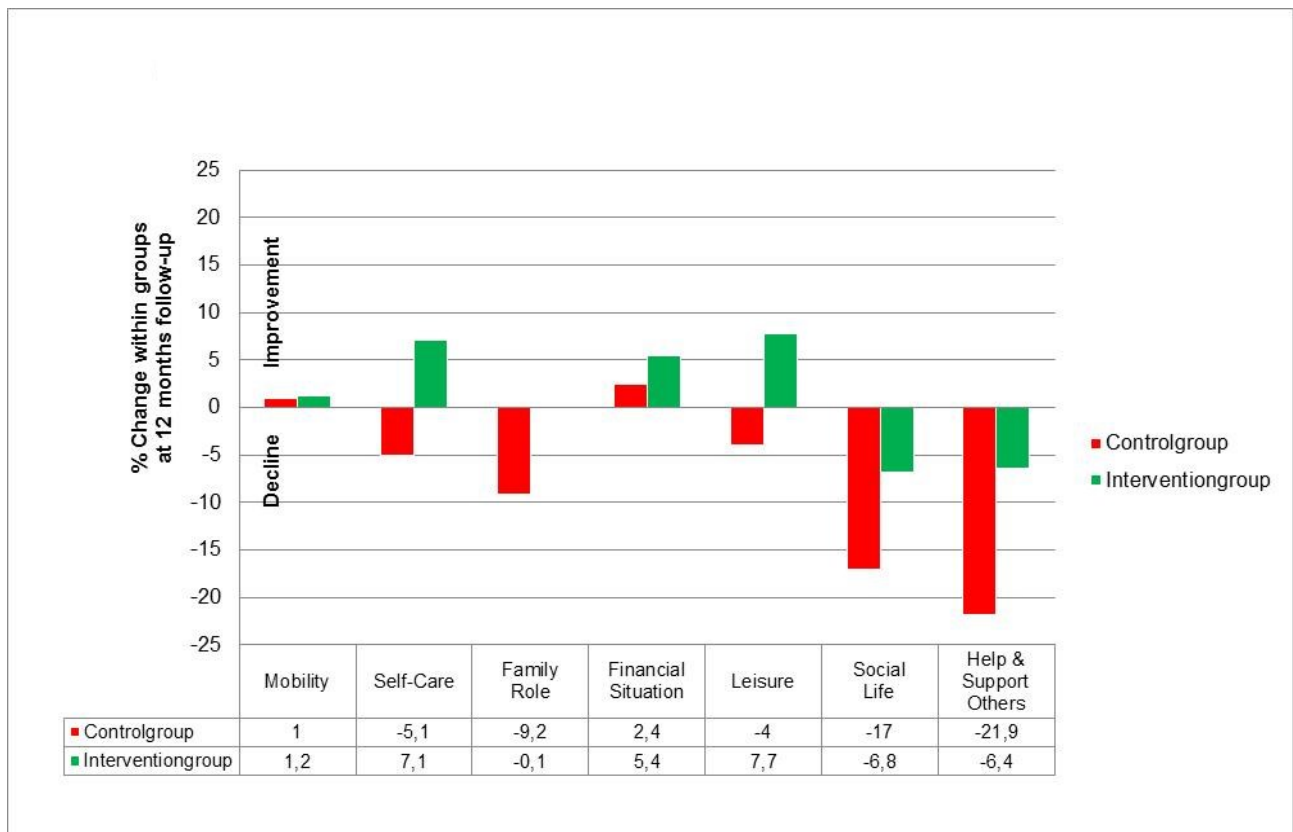


Figure 4. Change between groups in perceived problems with participation at 12 month follow-up. *Reprinted with permission* (Johansson, Dahlberg, Jonsson, & Patomella, 2015).

Impact on Occupational Gaps

According to the Occupational Gaps Questionnaire, the median of three gaps at baseline in both groups indicated that these older adults did experience some problems with participation in valued occupations. At follow-up the analysis revealed that there were no differences either within the groups or between the groups in comparison with baseline measures. The median of the three gaps remained the same in both groups, as did the occupations, with the highest frequencies of occupational gaps at baseline. Both in the intervention and in the control group the vast majority of occupational gaps were related to: Doing heavy-duty maintenances, Participating in hobbies, Participating in outdoors activities and Travelling for pleasure.

CONCLUSIONS

The evaluation of the programme has contributed with new knowledge in terms of how multifactorial preventive programmes could be formulated to be beneficial for the individual, for the professionals and for the society.

- The result showed the efficacy of the programme in relation to falls and fear of falling. The participants in the programme had a lower risk of falling at follow-up than the controls, and a lowered risk for falls in comparison over time. In addition, the programme had a positive impact on the participants' experience of fear of falling. Both at follow-up and over time, the participants in the programme experienced a decreased risk of fear of falling.
- The programme did not have a strong impact on the subjective experiences of perceived participation nor on engagement in valued activities. However, there were positive trends in favour of the participants in the programme as a lower experience of problems with participation were measured at follow-up.
- The multifactorial approach in general and in particular the group-based format of the programme made an important impact on the participants' engagement in valued activities. The participants narrated how the programme made them create new habits and new ways of thinking and engaging in their everyday life.
- The group format worked as an amplifier for the translation of expert knowledge to applied knowledge that led to increased awareness. By the approach of learning by doing (occupation-based) in a safe and shared occupation-focused environment, the participants could subjectively embrace important components of the programme and apply them in their everyday life. The applied knowledge led to a behavioural change.
- For the process of behavioural change to work, the therapists as group leaders, needed to move between the role of the expert and the role of the facilitator, to create a safe and benevolent climate for engagement, learning and knowledge translation.

GENERAL DISCUSSIONS

The occupational perspective in this thesis was grounded in occupational therapy and occupational science. This perspective was used to support the development of the programme, the aims, the chosen methodology for data collection and analysis, as well as for the interpretation of the results. The overall aim of this thesis was to contribute new knowledge that reflected experiences from, and efficacy of the programme in relation to everyday occupations among community-dwelling older adults at risk of falling. By taking on the occupational perspective throughout the thesis, this has implied that the focus has been on engagement in everyday occupations and valued activities in the context of accidental falls, rather than using extensive medical or functional interpretations of the complexity of falls.

In the following section, the main results are discussed from an occupational perspective in conjunction with EBP starting with the impact of the programme on falls, fear of falling and perceived participation. Thereafter, the increased awareness, as described by both participants and therapists, is discussed, followed by how the group format of the programme influenced the translation of knowledge as an amplifier leading to behavioural change. Finally, the multifactorial and the multidisciplinary approach of the programme will be discussed and linked to evidence-based practice.

The use of occupation-focused and occupation-based approaches, could positively influence falls, fear of falling and perceived participation

The results in this thesis showed that the programme had the potential to reduce falls as well as fear of falling. These results might possible generate benefits to the society, in terms of lower costs for fall-related consequences, as well as for the individual who is able to stay active and engaged in older age. The efficacy of the intervention was satisfying and demonstrated the potential of a multifactorial approach. These components as combined in this programme, created a unique learning environment with a dynamic flow between multifactorial group-based exercises and occupation-focused discussions (Fisher, 2013). The standardised materials were, through the discussions among the participants and the home visits in conjunction with the different levels of challenge in the balance exercises, individually tailored to be as effective as possible (Chodzko-Zajko, et al., 2009; Gillespie, et al., 2012; Nelson, et al., 2007). The exercises in which the participants practiced getting up from the floor were appreciated among the participants and, more importantly, they contributed to an enhanced sense of awareness and security, as described in study II. As a result, this strategy of repetition of exercises consequently contributed beneficially to both the decrease in falls and fear of falling. Based on an occupational perspective including client-centredness (Law, et al., 1995), the results in study IV

showed how the prevention of falls could be addressed from a “learning by doing” occupation-focused and occupation-based approach in a group format (Fisher, 2013). This approach seems important especially when the knowledge translation includes how to learn and apply new strategies in everyday life as described in MOHO as re-shaping ourselves (Kielhofner, 2008).

To connect the client-centred practice and the multifactorial approaches within the learning environment in the programme, the process required a “bridge” of valued activities to aid understanding of its connection to health and well-being (Clark, et al., 2001; Clark, et al., 1997; Clark, et al., 1991; Hemmingsson & Jonsson, 2005; Jonsson, 2008, 2011; Njelesani, et al., 2012; Wilcock, 2005; Zemke & Clark, 1996). Clark and colleagues (2001) showed in their evaluation, of the programme Lifestyle Redesign, how engagement in occupations per se not did contribute to a better outcome on occupation-focused outcome assessments. Instead, it was the intervention arm focusing on engagement in meaningful occupations or valued activities, led by an OT, which contributed significantly to increased health and well-being. This result strengthens the assumption of a positive relationship between engagement in valued activities and well-being. As such, the results in this thesis show the importance of using this occupation-focused bridge of everyday activities as an amplifier for behavioural change, which also has been confirmed by others (Fisher, 2013; Fisher & Kottorp, 2015; Whalley Hammell, 1995, 2007; Wicks, 2006). According to MOHO (Kielhofner, 2008), behavioural change takes time, depending on the need of repetition of the *new* to start reshaping ourselves. The repetition of new thoughts, feelings, and altered occupational performance evolves in conjunction with the environment, which has to be supportive. When everyday occupations are the focus of programmes, the goals as well as the means are to encourage the participants to engage in daily activities rather than to use passive avoidance behaviour. The latter approach has been criticised and highlighted (Clemson, 2010; Clemson et al., 2010; Whalley Hammell, 1995). According to the occupational perspective the practical doing, being active, occupied, and engaged is of great importance and supports active ageing. The decrease in the falls and the fear of falling in this thesis provides inspiration and hope for complex interventions, such as this programme, which include the actual doing of everyday activities, to be more frequently used in rehabilitation work.

A further outcome related to the impact of this falls-prevention programme was increased awareness in relation to the everyday occupations, described in study I and II both from the perspective of the participants and the therapists. However, the increased awareness did not per se lead to increased experiences of fear of falling, which could have been a potential result. The concept of Fear of falling and its association with falls has been widely examined in falls prevention research (Clemson, et al., 2015; Delbaere, et al., 2006; Salkeld, et al., 2000; Zijlstra, et al., 2007). In this thesis, the results of Fear of falling in association with Falls indicate that individual and group variations are extensively present and that older individuals are not a homogenous group, which is consistent with other studies (Clemson, et al., 2015; Delbaere, et al., 2006). Accordingly, the Fear of falling as well as falls needs to be examined and addressed in a client-centred way, as the impact from the concepts is individually

experienced and interpreted in everyday life by the individuals. Fear of falling might lead to activity curtailment, which in itself might increase the risk of falls (Peterson, 2010).

Regarding the results in study III, concerning perceived participation and autonomy, a limited effect was found. Participation and autonomy are, from an occupational perspective, viewed as cornerstones and important for occupational therapy practice (Hammel, et al., 2008). However, the intervention group did experience a decrease in their experiences of problems with participation and a slight increase in their perceived participation and autonomy, as compared to the control group. This moderate result could be partly explained by the fact that both groups of participants rated their perceived participation as fair or better at baseline, consequently there was less room for improvement at follow-up. Another reason for this result may be related to the difficulty in measuring the constructs of participation and autonomy. As concluded by Hammel et al., (Hammel, et al., 2008) participation as a concept is by definition built on individual experiences expressed and discussed in subjective terms. These findings, along with the occupational perspective on participation, (Hemmingsson & Jonsson, 2005) imply that it could be difficult to quantify the individual experiences of participation. In addition, it has been concluded that individuals with very different patterns of participation could still experience full participation (Hammel, et al., 2008). As such, in this thesis the participants spoke of increased awareness and the importance of staying engaged in everyday occupations, but did not use the word participation. Engagement in valued activities was stable over time between the intervention group and the controls. Thus, the results in this thesis indicate that a fall history, either as an actual fall, a fall incident or fear of falling could have an impact on engagement in valued activities and needs to be further examined. Hence, Eriksson and colleagues (Eriksson, et al., 2013) found that individuals over the age of 65 in the general population had fewer occupational gaps than the older adults in our sample.

Thinking and acting in a new way

Emerging habits and altered occupational performance as results of increased awareness.

One idea from research proposed to be included in the programme for the prevention of falls was that it should be formulated towards the goal of maintaining an active life, in which individuals are encouraged to engage in valued occupations rather than being instructed to be passive and adopt avoidance behaviour (Clemson, et al., 2012; Whalley Hammell, 2007). When the older adult continues to age and suffers from physical decline they might experience feelings of vulnerability, which grow into fear. This vulnerability might influence and decrease the engagement in activities (McMahon, Talley, & Wyman, 2011).

In this thesis, all the informants' narratives were interpreted from the occupational perspective as physical decline and processes towards a more limited life, similar to the description of an ageing life according to the disengagement theory (Cumming & Henry, 1961) and descriptions of activity patterns within older adults (Eriksson, et al., 2015). Experiences of falls and/or fall incidences were warning signals about how these processes could take a rapid and qualitative jump and negatively impact on engagement in valued activities. In research, as described earlier, perceptions of falls and their consequences vary at an individual level. Falling could even be interpreted as a natural result of getting older (Host, et al., 2011). According to Laslett's theory of ageing (1997), the experiences from the participants could be interpreted as they were in the third age but how a fall could easily hasten their entry into the fourth age. In this framework of ageing on the brink of a possible decline, the intervention came into the narratives of each participant.

Increased awareness was the most commonly used expression concerning how the programme influenced the narratives of the informants. The areas and occupations connected to the increased awareness varied widely as they were closely intertwined with each individual's everyday life and specific valued occupations. This result is in line with the idea of the programme, that fall prevention has to address a variety of aspects and factors, e.g. to be multifactorial and multidisciplinary, to be of significance for the individual, as expressed in contemporary research (Bunn, Dickinson, Barnett-Page, McInnes, & Horton, 2008; Clark, et al., 2001; Clark, et al., 1991; Jackson, et al., 1998). As such, the narratives revealed the different ways that the programme addressed specific aspects of everyday life.

Three themes of change were detected; changes in performing specific activities, changes in habits, and changes in the environment that overbridged barriers and obstacles facilitating safe performance. These findings are in line with the descriptions of change in MOHO (Kielhofner, 2008). As abilities decline it is important to adapt one's habits and the environment to be able to continue engagement in valued activities. Our values, interests and habits as well as our performance capacity are maintained and changed by engagement in valued activities (Kielhofner, 2008). Occupations can, when engaged in, transform the environment and the social traditions (Jackson 1996). Adapting to change is also crucial according to the continuity theory (Atchley, 1989, 2006). As continuity means progress linked to the individual's past, this implies that change occurs over time when the process of adaptation is successful (Eriksson, et al., 2015).

Whilst these informants described their ageing life as physical decline and a process towards a more limited life they all ascribed the engagement in the programme as enjoyable and important. Not only did the informants discuss the importance of staying active and engaged, they were also encouraged to practically engage in valued activities throughout the entire programme both alone and in the group context. It has been suggested that learning by doing, or when individuals directly participate in occupations, amplifies and goes beyond the cognitive understanding of how to perform occupations

(Jackson 1996; Ward, Mitchell, & Price, 2007). This approach of occupation-based learning made a significant impact on the informants' understanding and was expressed as increased awareness. Increased awareness is acknowledged in the literature and described as an important component of learning (Jackson, et al., 1998; Nilsson & Nygård, 2003; Wicks, 2006).

Thus, to enable active engagement from the older adults and for them to be able to translate expert knowledge to applied knowledge, the group climate had to be safe and amiable. The establishment of trust is described as a challenge in the implementation process of complex intervention programmes (Aberg, Lundin-Olsson, & Rosendahl 2009; Ewles & Simmet, 2003; Håkanson, Sahlberg-Blom, Ternstedt, & Nyhlin, 2012). According to the therapists, the interaction in the groups and the importance of engagement and peer learning were essential factors for increased awareness. Moreover, the findings showed how inviting the older adults to share experiences in everyday life, for example as stories told in the group meetings, had an impact on how the older adults constructed new knowledge that was possible to apply in their everyday life, leading to behavioural change. Additionally, the members of the groups encouraged each other to explore new ways of doing occupations, similar to other findings targeting the value of group-based programmes (Jackson 1996; Pandya, 2010).

The group format as an amplifier for knowledge translation and behavioural change.

The importance of client-centred practice (Hammell, 2013) was seen as one, but not the only important active agent, in relation to behaviour change. The sharing of experiences within a larger context, the group, was seen as equally important contributing to a more collectively shared meaning of the occupations (Christiansen & Townsend, 2010). Importantly, the group and discussion format of the programme amplified the increased awareness through the interaction with other participants in a give and take dialogue. This process of knowledge translation comprised and translated the general issues that were discussed at the meetings to concrete everyday experiences and strategies to overcome obstacles in everyday occupations. Older people learn from and share experiences with peers rather than just accepting professional advice, which might be experienced as patronising (Pohl, 2015). Further, group-based interventions are favourable settings for learning. The exchange of knowledge creates an advantage and an opportunity to learn from persons in similar situations (Gustafsson, et al., 2012).

It is neither new nor unusual that occupational therapists and physiotherapists within primary care use group interventions in their professional practice. However, at least three aspects were new to the therapist in the specific programme introduced in this paper. Firstly, the move towards being a facilitator rather than exclusively an expert was new, creating possibilities for group dynamics. Secondly, the evidence-based and client-centred approach together with the multidisciplinary aspects of the programme contributed to knowledge translation supported by the emerging group climate. In

addition, the approach of learning in combination with the occupation focus and the occupation base of the programme, created opportunities for the process of increased awareness. The view that the professional role of being the expert who knows everything best could be challenged in favour of the role as a facilitator is supported in the literature (Hammell, 2013; Whalley Hammell, 1995) and the learning benefits along with the client-centred approach created advantages in practice (Mattingly & Hayes Fleming, 1994; Rubel & Kline, 2008). Attention should be paid to ensure that the therapists applied a non-patronising approach, as a prerequisite for the knowledge translation in a dynamic and safe climate in the group (Bunn, et al., 2008; Cheal & Clemson, 2001).

The approach was attentive to being positive and encouraging, focusing on how stay fit, stay engaged and stay social. The teacher-centred approach which contrary to the client-centred approach places the teacher in the role of the expert and the information is distributed as one way communication (Whalley Hammell, 2007) which could impact negatively the participant's own self-determination as shown in research (Vaapio, et al., 2007; Yardley, Bishop, et al., 2006; Yardley, Donovan-Hall, et al., 2006). For the group leaders to facilitate this process of learning they have to be active listeners to the participants' needs, be neither authoritarian nor judgmental, and not tell the older adults what to do (Law, et al., 1995). Furthermore, the therapists described how this complementary role of becoming a facilitator emerged over time and they were supported by the feedback from the older adults in the groups as they over time showed increased engagement and participation. Similar findings describe how when group leaders engage with the group, learn from the group and build new professional confidence by using that new knowledge, this nurtures the skills of the group leaders and facilitates extensive learning (Holland, Middleton, & Uys, 2012). These findings shows how the evolving role of the group leaders becoming facilitators attracted the older adults' attention and made them more actively engaged in the group discussions. Further, the therapists were enthusiastic about the benefits of the teamwork and the multidisciplinary approach in the programme. They described how they could learn from the other professionals and how this enriched their own professional role and thereby built new professional confidence (Merrett, Thomas, Stephens, Moghabghab, & Gruneir, 2011).

Since the approach from the group leaders (OT and PT) was to facilitate discussions of the theme presented, and connect the discussions and actions to meaningful occupations for the individuals, this demanded an occupation-centred perspective (Fisher, 2013) from the group leaders. The occupational perspective acknowledges the view of people as occupational beings and also the importance of the recognition of the experience of meaning related to occupations as well as the occupational performance interacting with the environment (Kielhofner, 2008). When engaging in occupation-focused discussions (Fisher, 2013), meaningful to one or more of the group members during the programme sessions, a shared meaning could emerge and create implications for behaviour change in the everyday life (within the environment) of the participants. The learning in this programme was supported in a non-judgemental manner by the group climate and the peer learning. Similar progress has been described concerning the importance of the group as a contributor for the translation of

expert knowledge to everyday knowledge applied in the participants' everyday life (Adolfsson, Smide, Gregeby, Fernstrom, & Wikblad, 2004; Dickinson et al., 2011; Jackson, et al., 1998; Mountain & Craig, 2010; Nilsson & Nygård, 2003).

Moreover the learning approach highlighted the importance of the interaction in the groups, the importance of engagement and how the group could encourage each member to explore new ways of doing occupations together (Christiansen & Townsend, 2010; Dickie, et al., 2006) or individually within the environment. Most of the knowledge translation took place within the interaction of the participants and the environment through occupation-focused or occupation-based activities. The findings in this thesis also could challenge the theoretical frame used for interpretation of the interaction between the human and the environment and imply that occupations or valued activities needs to be understood using more complex and dynamic theories. As such, the findings might open up for a more transactional perspective that views the human and the environment as a constantly changing and integrated "unity" (Cutchin & Dickie, 2012; Dickie, Cutchin & Humphrey, 2006). As such, the findings indicated that it was through the "interaction" within the individuals, the group-format and the environment that the knowledge translation and behaviour change emerged. When considering a transactional perspective the focus could shift from individual to a more situated performance within the environment (Cutchin & Dickie, 2012; Dickie, Cutchin & Humphrey, 2006). However, also MOHO claims to be based on the non-dualistic view of the human and the environment (Kielhofner, 2008), but uses a more divided terminology in explanation of human occupation in relation to the environment.

In addition, the literature also describes how the life experiences an individual brings along should be viewed as an asset upon which new knowledge can be built (Dysvik & Furnes, 2012). Additional strengths of the group-based format were for example, that the older adults were empowered which allowed them to trust in their own ability, for example to get up from the floor after a fall and they were shown respect and given options to become actively engaged, as in client-centred practice (Rubel & Kline, 2008; Whalley Hammell, 1995). Not all the participants experienced the group as a prerequisite for change or important for learning. This might have been due to a lack of connection or fellowship in some groups.

The occupational perspective in conjunction with EBP, and the multifactorial and multidisciplinary approaches of the programme.

Working from the approach of EBP (Hoffmann, et al., 2013), underpins the possibilities to improve therapeutic quality for the clients and in an ecological way, which contributes to cost effectiveness and assists in clinical decision-making. As the programme had the form of a multifactorial activity engaging study-group, with all the different themes addressed in relation to falls prevention, the

therapeutic reasoning was guided by an occupation-centred approach (Fisher, 2013). The use of this approach led to the occupation-focus and occupation-base of the programme.

The multidisciplinary approach based on an occupational perspective gave the therapists opportunities to learn from the other professionals and build new professional confidence (Holland, Middleton, & Uys, 2012). The positive effects of a multi-disciplinary approach have also been recognised in other studies (Gillis & English, 2001; Holland, et al., 2012) where the benefits of such an approach were interpreted. However working with the implementation of evidence-based complex group programmes might also challenge the professional roles of the group leaders (Efraimsson, et al., 2008; Gustafsson, et al., 2012; Pandya, 2010). As such, the process of implementation of EBP has been described as complex and requires multilevel guidance of the staff as well as patient engagement (Shubert, et al., 2014).

For the participants, the variety of themes discussed at the meetings created opportunities for individual interpretations based on their values, habits, and occupational performance. Depending on the participants' individual preferences in conjunction with the group discussions, an extensive multifactorial variety of strategies could be undertaken and applied in everyday life. The standardised falls prevention programme was client-centred and tailored by the participant to fit within his or her own occupational life in relation to the environment. The importance of the interventions fitting into the individuals' context is recognised as an active agent in successful interventions (Clark, et al., 2001; Kielhofner, 2008). Further, from an occupational perspective, the broadness and the occupational focus of the multi-disciplinary fall-preventive subjects addressed in the programme, gave the informants knowledge of how and why an active lifestyle contributes to health benefits. This active lifestyle approach is also supported in other research literature as being beneficial for healthy ageing (Clemson, et al., 2012; Jackson, et al., 1998; Mountain & Craig, 2010; Mountain, Mozley, Craig, & Ball, 2008; Wicks, 2006).

The practical engagement along with the idea that fall prevention has to address a variety of aspects and factors in order to have significance for the individual might also have influenced the completion of the programme for the informants. In this study all the informants completed the programme over nine months. Problems with adherence to programmes have been stressed in contemporary research (Gibson, Greene, Sample, & Cabrera, 2010; Merom et al., 2012; Pohl, 2015) and must be viewed as a major threat to the evaluations of programmes in research. This might also negatively contribute to the ineffective use of resources in primary health care. Older adults' perceptions of contributors to adherence to falls-prevention interventions are: social support, low intensity exercises, support for autonomy and interpretation of the programme as relevant with a focus on active ageing (Bunn, et al., 2008).

As the programme "Active Lifestyle all your Life" has been clinically implemented since 2011 in primary health care in Stockholm it has over the years generated a multilevel dialogue involving,

therapists, executives and government representatives. Through these dialogues, it has come to our attention that EBP is not that easy to implement, despite recommendations (Socialstyrelsen, 2012). Many barriers are experienced, resulting in a gap, today, between the amount of trained facilitators on the programme and the therapists who actually deliver the programme as intended. This result supports the idea of that the implementation of EBP is an ongoing process in rehabilitation work, which could be hard to fully accomplish (Fisher & Kottorp, 2015; Shubert, et al., 2014), but which is nevertheless rewarding when achieved (Hoffmann, et al., 2013).

The multifactorial falls prevention programme has been evaluated by the use of RCT design, which is described as the golden standard for intervention evaluation (Machin, et al., 2007). In addition, the quantitative data relating to the programme's efficacy has been complemented with the findings concerning the impact of the programme from the participants and the therapists the perspectives. The results in this thesis present new knowledge addressing the complexity of falls prevention derived from several important inquiries. Additionally, the programme might also be in line with EBP if following the earlier definition (Hoffmann, et al., 2013; Fisher & Kottorp, 2015).

This falls prevention programme could be interpreted as a contributor to EBP, as it could strengthen the quality of the work in primary health care. The methodological design of this thesis presents openings for further discussion.

Methodological considerations

Design and Procedure

This thesis comprises mixed methods for collecting and analysing data. The overall use of the RCT design is described as the superior method used to design the evaluation of complex interventions (Machin, et al., 2007). The reporting of the results from the trial was guided and strengthened by the use of the CONSORT (Boutron, et al., 2008). When fully used as intended the RCT design minimises the risk of bias, the impact from any known or unknown confounders, and strengthens the generalisability of the results. However, there are some limitations important to discuss concerning the use of the design in this thesis.

Firstly, the sampling method has its limitations. The therapists at the primary health care clinics included recruited and invited participants themselves. The recruitment followed the inclusion and exclusion criteria earlier presented. However, there was no registration of how many of the persons invited declined to participate. This might have led to selection bias in the overall sample of participants. Hence, it has been assumed that about 70% of older people might accept an invitation to a falls-prevention programme (Pohl, 2015). The sampling method used might imply that the sample is not representative of the target group of community-dwelling older adults at risk of accidental falls.

Together with the rather small sample size this can possibly have affected the generalisability of the findings.

Furthermore, the choice to randomise the participants included into an intervention group and a control group at every primary health care clinic could have generated bias in the form of contamination between the two groups (Hoffmann, et al., 2013; Machin, et al., 2007; Wang & Bakhai, 2006). If the same care providers administer the treatments being compared, this might also introduce bias to the trial (Boutron, et al., 2008) as the therapist might have introduced parts of the experimental programme to the control group. In addition, the participants might have known each other prior to inclusion in the study and allocation into the two groups, and consequently might have shared the material from the programme. Prior to inclusion, the participants in the sample were told not to discuss group allocation or the content of the programme but they might have done this through friendship and thus caused bias. If the choice had been made to use a cluster randomisation procedure instead (Machin, et al., 2007) and by that approach allocate the centres instead of the participants this potential bias would have been avoided (Boutron, et al., 2008; Wang & Bakhai, 2006).

Additionally, in the discussions of potential bias in the randomisation procedure, the extended procedure to re-allocate some of the participants in the control groups into the intervention group could not be neglected as it interferes with the original randomisation procedure, which was blinded. The choice to re-allocate some of the participants was on account of problems in finding participants matching the selection criteria. If the intervention groups had been too small, the group intervention would not have been feasible on account of decreased opportunities for the emergence of group dynamics. However, the second randomisation procedure was, like the original procedure, performed by a research assistant who was in no way directly involved with the participants, the delivery of the intervention, or the collection of data. Blinding issues could also be stressed according to the methodology as the assessors were blinded but the therapists and participants were not and this could introduce performance bias (Boutron, et al., 2008).

Going further in the methodological consideration of this thesis there is an issue concerning potential bias arising from the design and use of data collectors. In the two qualitative studies the PhD student (EJ) performed all the narratives and together with the principal investigator (HJ) performed the focus groups interviews. Also in the two quantitative studies (EJ), the PhD student, collected the data. Bias from this might have affected the results as the participants might have answered in a more favourable way and related things that they thought the researcher wanted to hear. However, the findings showed both positive and negative experiences of the programme.

Specific methodological issues regarding the use of focus-group methodology are also to be found. As the method explicitly uses the group discussion as research data, it is thus important to describe the advantages of using group discussion as a basis for data collection. The method requires that an experienced group leader leads the discussion to encourage the participants to share their experiences.

The role of the group leader is one of the most important aspects for the results. Further, it is important to describe the selection of participants in terms of homogeneity and heterogeneity. Focus groups are described as based on commonality and shared experiences (Morgan & Kruger, 1998). Participants have something in common that is of interest to the researcher, and they are selected because they are homogeneous, likeminded people. Within this context it is also important to explore participants' differences with respect to experiences. In study I, not all of this was accomplished as the group could have been described in more detail. However, the decision to include all of the therapists working on the programme was based on the aim to grasp the total experience of all the group leaders. This decision strengthened the quality of the findings as 15 of the 18 therapists participated in the discussions, and the reason the others declined was extreme workload and thus no possibility to attend any of the focus groups. In addition, the focus-group method highlights that words and statements can only be considered in their context (Morgan & Kruger, 1998). Focus groups are seen as founded on discussion and do not focus on individual comments but rather on how the participants discuss matters with each other and the meaning that emerges from that context. The category emerges from the discussion among the participants. Quotations from single participants presented on paper as a description of a category have less value than quotations representing a discussion, as they do not show the meaning emerging from the text. In study I, there are quotations cited from only one therapist at a time, but these citations represented and reflected the general discussions in the focus groups.

Measures/Instrumentation

When evaluating a clinical trial a follow-up rate of 85% is considerate as acceptable (Hoffmann, et al., 2010). In study III and IV, the follow-up rate was 87%, which supports the internal validity. Regarding the modest result based on the outcome measures in study III, IPA-S and OGQ, the interpretation of this could be discussed. Firstly, there was no power calculation performed. The lack of power might result in differences between groups but the analysis fails to detect the changes (Machin, et al., 2007; Wang & Bakhai, 2006). Secondly, the instruments used might be less sensitive to change. In addition, participation, as a construct, might be interpreted and understood in different ways by the individuals (Hammel, et al., 2008). A personal definition of the concept of participation is required in order to understand if it could be responsive to any intervention. For example, a participant might live together with a more dependent spouse and for this reason experience participation restrictions in his or her everyday occupations. Such a situation/condition would probably mean that, for this individual, the experiences of perceived participation might not be responsive to a falls-prevention programme. To accomplish mutual understanding of the individual interpretation of participation and autonomy in connection with well-being, occupation-focused assessments could benefit from observational measurements (occupation-based) as well.

There are some issues relating to the methodological choice in the data collection concerning falls and fear of falling. The choice to use one single question at baseline and follow-up regarding the

occurrence of falls might have benefitted from the approach using prospective falls calendars (Hauer, et al., 2006). Falls calendars are extensively used and recommended by the Prevention of Falls Network Europe (Lamb, et al., 2005). The administration of a falls calendar would also have minimised the risk of recollection bias. In addition, a falls calendar would open up for other types of statistical methods for the evaluation of the programme's impact on falls. Concerning the question about fear of falling, it has been assumed that one single question of that kind does not have any clinical or research value as it is strongly gendered (Pohl, 2015). Additionally, a core set of outcome measures regarding falls has been formulated aiming to increase the comparability of the study results (Hauer, et al., 2006; Lamb, et al., 2005). As such, falls, fallers, fall rate, and time of first fall should be included and reported.

The ongoing discussions about the (non)use of occupation-focused and occupation-based measures, have recently been extended and further developed (Fisher & Kottorp, 2015). It is crucial to use and define concepts, in a standardised way to generate a common sense language, taxonomy (Fisher, 2013; Fisher & Kottorp, 2015; Hauer, et al., 2006). Consequently, the importance of generating evidence that supports the unique "occupational component" tailored to the occupational therapy context for EBP (Fisher & Kottorp, 2015), is stressed as an imperative element. Not only do we need to make use of occupation-focused and occupation-based intervention, but we must also follow through our occupational perspective and apply occupation-focused and occupation-based outcome measures (Fisher, 2013; Fisher & Kottorp, 2015). Examining participants' occupational performance when engaged in a meaningful activity is essential in occupational therapy (Peterson, et al., 2012). As Fisher and Kottorp argue, it is by the use of these approaches that we can address our evidence to be supportive of the occupational component and by that highlight the focus of occupational therapy evaluation (Fisher & Kottorp, 2015). In the evaluation of the programme, we made the choice to include a variety of instruments and methods for data collection. Unfortunately, none of them included in this thesis was occupation based, but several of them were occupation focused. As an example, the IPA-S, measuring perceived participation is occupation focused, as the questionnaire includes inquiries about engagement in occupations and the experiences of them. Further, the OGQ measures the possibilities to engage in valued activities, and is thus also occupation focused. On the other hand, instruments or questions were included which were neither occupation focused nor occupation based such as the SF-12, the FES-S and the questions concerning fear of falling. However, as this programme had a multifactorial and multidisciplinary base, using other instruments was justified in an attempt to grasp the complexity of falls and their prevention. Hence, the results from the evaluation of this programme failed to demonstrate convincing changes in the occupation-focused outcome measures, however they were successful with respect to the other measures. Other studies evaluating programmes comparable to this (Clark, et al., 2001; Clark, et al., 1997; Clark, et al., 2012; Clemson, 2010; Clemson, et al., 2004; Clemson, et al., 2012) also show intervention effect but not on the occupation-focused or based (if used) instruments. This is an important aspect to go further with as an

inquiry for the development of more suitable instruments which are based on an occupational perspective and which are occupation-based.

In addition, another issue important to relate to regarding the use of a standardised way to generate common sense language is to highlight and put forward the occupational component in interventions. Stressed by Fisher and Kottorp (2015) it is essential to know which component in the intervention that is operative and generates the results. This argumentation is in this thesis supported to some extent however according to the results, not fully. When taking into account the multifactorial and multidisciplinary approach of the programme in conjunction with the theories of ageing and the occupational perspective presented, this underlines the importance of individually tailoring the programme. It is not possible to elucidate the activity patterns of older adults as homogenous. The activity patterns show individual variances and similarities within all ages (Eriksson, et al., 2015). This variation means that the subjective interpretation of an intervention needs to be understood in the individual context. As such, the experience of meaning in conjunction with activity engagement is essential for the connection to health and well-being (Clark, et al., 2001; Jackson, et al., 1998). At an individual level, the general knowledge in the programme was translated, amplified by the group context, and translated to everyday knowledge leading to behavioural change. Thus, according to the result it might not have been motivated (or even possible?) to break apart the complex intervention in order to outline which component was more effective than another, as the significance of the different components varied at an individual level.

CLINICAL IMPLICATIONS

The policy for active ageing (World Health Organization, 2002) declares the importance of maintaining autonomy and independence among older adults. When applying the policy it is supposed to result in the continuation of activity engagement and high participation in the society among individuals. To prevent deterioration and improve well-being it is essential to achieve health behaviour change among older adults (Fried, et al., 2004). When older adults are engaged in healthy behaviour this may promote low cost and valuable results (Wiederhold, et al., 2013). Thus, multifactorial and multidisciplinary approaches are required to address the complex topics of threats in active ageing i.e. falls (Menichetti, et al., 2015). By using such approaches, the individual engagement could be enhanced thus facilitating more control and autonomy of their own health and well-being.

- The knowledge derived, from the evaluation in this thesis, could be of use as a prevention programme model implementing EBP in primary health care. In addition, the implementation of the programme could serve as one important attempt to plan ahead and migrate the negative effects of an increasingly ageing population and support active ageing through the use of an occupational perspective.
- Falls and the multifactorial consequences do not have a shared conceptualisation e.g. they do not show a coherent pattern, and the impact of a fall seems to vary at an individual level. Individual experiences need to be accounted for when formulating complex preventive interventions.
- Falls and fear of falling could be positively impacted by using occupation-focused and occupation-based methods.
- Small group-learning environments in combination with learning by doing, could be an effective approach to use to prevent falls and reduce fear of falling among older individuals at risk.
- The group format worked for the translation of knowledge into everyday life and valued activities among the participants. The groups per se, and group-dynamics are viewed as important methods for behaviour change.
- Occupational therapists need to be attentive to how perceived participation and autonomy in everyday occupations are subjective experiences for their clients that vary at an individual level.
- The occupation-focused and occupation-based methods in practice and in outcome measurements are necessary and essential in evaluating treatment effects. When using those methods the occupational perspective is strengthened and Occupational Therapists are able to follow through with the core of their profession.

FUTURE RESEARCH

As this thesis is built upon promising results from a pilot randomised controlled design, the first topic of interest would be to extend and develop the design into a full scale RCT. In a full scale RCT it would be interesting to use and integrate the knowledge arising from this thesis, and address the methodological limitations previously acknowledged. More specifically, the design of a nationwide RCT could build on the following principles:

- The design for randomisation could be built on cluster randomisation (Machin, et al., 2007) of the centres, primary care clinics.
- Use the crossover design (Machin, et al., 2007) and follow the participants for two years, both as a participant and as a control.
- Use prospective falls calendars with standardised Follow-up questions (Hauer, et al., 2006) to measure falls, fallers, fall rate, and time of first fall as well as consequences.
- Use occupation-focused and occupation-based outcome measures such as FaB (Clemson, Bundy, Cumming, Kay, & Luckett, 2008), AMPS (Fisher & Jones 2012; Fisher & Jones, 2012) and COPM (Law et al., 1990) to follow through, and fully apply an occupational perspective.

This type of complex preventive programme could also benefit from the evaluation of its cost effectiveness through the use of health economic studies. Additionally, this focus could be combined with action-oriented research, where research and development/change are intertwined in a forward-backwards process (Craig et al., 2008).

Further, an inquiry for more use of occupation-focused and occupation-based outcome measures demands an extensive longitudinal process of development of such instruments (Fisher & Kottorp, 2015).

In addition, the process of EBP needs further support by research aimed at increasing knowledge about structural and hierarchical obstacles/principals for the implementation of preventive programmes in primary health care.

ACKNOWLEDGEMENTS

As a doctoral student at Karolinska Institutet, Division of Occupational Therapy, I've progressed both as a person and as a researcher. I have treasured each and every day, even in times of struggle. There are many persons who have contributed to this thesis existence and whom I wish to thank from the deepest of my heart.

First and foremost, this thesis would not have been possible without the participants. Thank you for generously sharing your occupational life with me and giving me the possibilities to follow your everyday life during one year.

Associate Professor Hans Jonsson, my main supervisor: I could not have been supervised by a more excellent person! You have unique skills in your guidance of a PhD student. Showing me that research could be an engaging occupation, made you my everlasting role model. You always encouraged me and guided me through my educational years with a mix of "learning by doing" and positive supportive strategies in a perfect pedagogical balance. Thank you for always being there when I needed you.

PhD Ann-Helen Patomella, my co-supervisor. You have generously shared your expertise and skills with me. I will be forever thankful for your kindness, hospitality, and generosity especially in Sydney! I will always admire and learn from your professionalism, your sharp eye, and your swift thoughts in research. Thank you for generously sharing extensive time with me! It has been an honour working under your guidance.

PhD Raymond Dahlberg, my co supervisor. You have generously shared your expertise and time with me. Details in this project would not have existed without you. I am sincerely thankful! Additionally, thank you for always having "the best for the doctoral student" in mind.

Professor Lena Borell, my co-supervisor. Thank you for all the time spent in posing valuable questions to me about my research over the years. It was always a pleasure and inspiring to find an e-mail from you or meet for a quick chat in the corridor. I have learnt very much from you and still do, for which I am genuinely thankful.

My colleagues in the project, Mona-Lisa Hågvide, Anne Claesson and Karin Sjöberg. Thank you all for contributing to the development and the implementation of the programme as well as the collection of data and administration of it. Without you, none of this would have been possible! Working together has been inspiring, joyful and generated laughs, along with important insights and professional development. I am honoured!

I also wish to thank Professor Louise Nygård for all the inspiration you provide for us as doctoral students. I have appreciated the KK's very much as well as the doctoral student weeks. Those forums have contributed extensively to my progression towards becoming a researcher. In addition, your

professionalism, curiosity and your ability to see the uniqueness in every person and project generates an inclusive working climate, which I am proud to learn from and be a part of at our division. Thank you!

Professor Lindy Clemson. My deepest gratitude for inviting me to the University of Sydney. Thank you for your generosity in sharing of your expertise and your time with me. I felt very privileged travelling to Adelaide with you. I have learned so much from you and have been inspired by your research, thank you!

To my mentor Marie-Louise Schult: Thank you for inspiring meetings and positive support.

I further wish to thank the Doctoral School in Health Care Sciences, Karolinska Institutet, Gun & Bertil Stohne's Foundation, The Swedish Association of Occupational Therapists (FSA) and Promobilia AB for financial support.

I wish to thank all my present and former colleagues at the Division of Occupational Therapy. Especially: Linda, Annicka, Eva, Malin L, Anna B, Lotta, Ann-Sofie and Maria. Thank you for all the laughs, discussions, and support!

My warmest thank you to all my "cheerleading" friends, you know who you are ♥ and my family who has always been there for me. Love you!

My husband Magnus: you are my soul mate, and the love of my life ♥! Without your love and support my world would have stopped moving. (Aldrig) Utan dina andetag!

To my children Kajsa and Max: You are the joy and pride of my life! I have so much to learn from you about what really is important in life. Go on and trust your inner voice and follow your heart along the tortuous paths of life. -"Do your best and leave the rest!" Jag älskar Er ♥!

Last but not least, I wish to thank Mr Ravelli, for impacting on my time disposition within my work schedule. Thank you, my furry little sweetie, for always making me laugh with your attempts to chase and attack all the fir cones in our neighbourhood.

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